



ICI MAGAZINE

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Sidney Rogerson J. L. Hewson Frank Ballin David Paton Richard Hirst Gordon Long

CONTRIBUTORS

Frank Ballin retired recently after 20 years' service in the Supply Department of Plastics Division. Besides his lifelong interest in numismatics, about which he writes on page 65, he is a keen student of the local history of Hertfordshire and has had several articles on this subject published. He is also interested in politics and has been treasurer of his local Conservative Association for some years.

W. d'Leny, who writes about the Agricultural Division on page 39, retired from ICI at the end of March. Has been chairman of the new Division since its formation and before that was chairman of Billingham Division (see also page 57).

J. L. Hewson is on the staff of the Engineering Department at Millbank. Has over 30 years' service with ICI, about half of which was at Cassel Works, Billingham, with a further four years at the former Salt Division, Winsford. Since 1953 he has worked at Head Office as adviser to ICI on water and effluents and represents the Company on numerous outside committees and organisations concerned with this subject. Off duty he is an enthusiastic gardener and an accomplished musician.

Richard Hirst joined Plant Protection Ltd. in the autumn of 1953 and for the next five years specialised in weedkiller development work, primarily in market garden crops and on industrial sites. In December 1958 he was transferred to ICI (Malaya) and since the following April has headed the Agricultural Advisory Department, spending much of his time travelling throughout Malaysia.

Gordon Long, originally a journalist, joined ICI just before the last war and is now assistant publicity controller (public relations). Over the years he has been a not infrequent contributor of articles, both serious and humorous, to the *Magazine*. His latest owes nothing to fiction but is a straightforward account of a recent and frustrating experience.

David Paton teaches mathematics and science at Charterhouse and receives the *Magazine* under the Company's policy of a limited distribution to schools. Love of natural history and photography has taken him on numerous expeditions over most of the mountains of Europe and, recently, as far as South Africa.

Sidney Rogerson joined ICI from the Federation of British Industries in 1930. In 1937 he was entrusted with the formation of the Central Publicity Department and remained in charge with the title of publicity controller until 1952, when he was borrowed from the Company to supervise public relations at the War Office. He left the War Office in 1954 and retired from ICI the same year to set up as a P.R. consultant on his own account. He will best be remembered in the Company for his pioneer work in the field of prestige advertising and for his part in the foundation of *Endeavour*, on the advisory panel of which he still serves.

Front cover: Filling a combine drill with ICI No. 3 fertiliser

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The Agricultural Division

by W. d'Leny



An Agricultural Division! Is this a completely new concept? Or just an existing Division under a new name? There is no simple "Yes" or "No" to either of these questions.

The Divisional structure of the Company was originally based to a large extent on the individual companies which joined together in 1926. Each of these companies had its individual technology, but not specific customers; frequently one customer or a group of customers would be a customer of several Divisions. So the Regional Sales Organisation developed, collecting together the products of the various Divisions in groupings more related to customer requirements.

This twofold organisation of production and policy in the Division and selling in the Regions worked well for many years, but there were difficulties. Divisions tended to operate as separate companies. A customer important to one

Division might be unimportant to another, and his important business could be upset by his being placed low on the second Division's priority list. Gradually there has been a movement through the Company to link production technology with markets, and hence there have arisen such new Divisions as Fibres, Paints and Plastics.

On 1st January 1964 the Company formed another Division of this newer type, an Agricultural Division, to bring together under one chairman and Division board all ICI's interests in the United Kingdom in agricultural chemicals so that that important group of ICI's customers, the farmers, both at home and abroad, might be provided with the best service possible in these products. This bringing together of the somewhat scattered constituents is a new concept, although the constituent parts already exist. They are the previous Billingham

Division, Plant Protection Ltd., and ICI's interests in Scottish Agricultural Industries Ltd., Richardsons Fertilisers Ltd. and Ulster Fertilisers Ltd. All except the Billingham Division are legally constituted companies with their own boards of directors, and except for the wholly owned Plant Protection Ltd. these boards have a responsibility to all their shareholders. The Agricultural Division Board cannot "direct" these companies, but their chairmen will be members of the Board, whose policy will be to plan and to operate for the maximum advantage of the whole and of the constituent parts.

The manufacturing and selling conditions which have been developed in past years by the local company in each country of the United Kingdom are now different from the conditions in any of the other countries. The two parts of the new Division whose manufacture is based in England are the former Billingham



Combine-drilling barley with ICI No. 1 fertilizer

Division and Plant Protection Ltd. The fertilizer manufacturing factories are at Billingham, where both straight nitrogen fertilizers and concentrated complete fertilizers are produced; Severnside, where at present only complete fertilizers are produced but the intention is to produce also straight nitrogen fertilizers; and Heysham and Prudhoe, which produce only straight nitrogen fertilizers. These fertilizers are sold in England and Wales entirely through agents. Plant Protection Ltd. does not manufacture the basic chemicals it requires; these are manufactured by individual ICI Divisions, such as Mond, Dyestuffs, Heavy Organics and by other parts of the Agricultural Division. At Yalding in Kent, Plant Protection by mixing, converting to dusts or by the addition of solvents, spreading agents, wetting agents, and so on, formulates these chemicals into the final products, sold under trade names such as 'Gammexane,' 'Preeglone Extra,' 'Agrosan G.N.,' 'Verdone,' 'Abol X,' 'Solufeed' and so on. There are more varieties in the PP list than even Mr. Heinz proclaims.

On the selling side in England and Wales, the Sales Regions have been organised for some time in such a way that their agricultural sales representatives have been able to speak with full authority on all the main ICI products required by

farmers—straight nitrogen fertilizers, concentrated complete fertilizers, seed dressings, 'Agroxone,' 'Gramoxone,' etc. Similarly, the Division's agricultural development officers, in drawing up with 180 co-operating farmers the forward cropping plans of their farms, have been able to advise on the use of all these products, not just on fertilizers. The Division has three main farms of its own, in Somerset, Cheshire and Dumfriesshire, for trials and demonstrations, and the Regional agricultural sales managers arrange for many thousands of farmers to visit these annually. The farms were originally purchased about fifteen years ago to demonstrate the economic advantage of high nitrogen application to grass, but in the future they could be used as required to demonstrate the advantages of any or all of ICI's agricultural chemicals.

In Northern Ireland, Richardsons Fertilisers Ltd. manufactures concentrated compounds in a new factory at Belfast Harbour, and Ulster Fertilisers Ltd. manufactures superphosphate-based compounds at Londonderry. A joint selling company sells this production of compound fertilizers, but it is also agent for ICI's straight nitrogen fertilizers and Plant Protection's products. Until the beginning of 1964 the Division's development officers in Northern Ireland were res-

ponsible for the development and demonstration of straight nitrogen fertilizers. All these functions have now been brought together within Richardsons Fertilisers Ltd. and Ulster Fertilisers Ltd., and the chairman of the two companies is a member of the Agricultural Division Board.

In Scotland the situation is again different. Scottish Agricultural Industries Ltd. manufactures a wider range of concentrated compound fertilizers at Leith and Aberdeen than Billingham, Severnside or Richardsons manufacture, and sells these not only to agents but also directly to farmers. This direct selling was derived from the original companies which formed part of SAI. In doing this, SAI acts very much as agricultural merchants do and has a large reciprocal trade with the farmers, purchasing grain, manufacturing and selling feedingstuffs, purchasing and selling seeds, and so on. It also acts as agent for Billingham and Heysham straight nitrogen fertilizers and for Plant Protection products. SAI has no demonstration farms of its own, but one of the Billingham farms—The Leaths in Dumfriesshire—is in Scotland, and many Scottish farmers visit it under the auspices of SAI. On 1st January the chairman of Scottish Agricultural Industries Ltd.—now Mr. J. Crozier—also became a member of the Agricultural Division Board, and in addition to directing SAI will play his part in formulating an effective policy for the whole Division.

The difference in method and performance between the three parts of the United Kingdom in production and sales of agricultural chemicals has hitherto been a source of some weakness which it would have been possible for a competitor to exploit. Each part should in the future be able to improve its performance from a close study of the strengths and weaknesses of the others, and the whole trading should be improved by close co-ordination. In the organisation of the new Division, production and sales in the whole United Kingdom has been made the responsibility of one deputy chairman—Mr. R. W. Pennock. He will have responsible to him one director for England and Wales, one director for Scotland, and one director for both Northern Ireland and Eire.

The fertilizer market, particularly fertilizer nitrogen, the plant protection products market and the market for industrial chemicals based on ammonia are all



Cutting grass for silage

fast-growing world markets—growing much faster than NEDC's target of 4% per annum. The products are all capital intensive products, and the markets ones wherein the technology of production and use of existing products are under considerable research and development attack to reduce costs and to improve efficiency of production and application. Great effort is being directed too to develop new improved products, some of which have in recent years been successfully launched with almost alarming frequency. As, in addition, the sales of these products form one of the Company's largest totals, it is essential that the forward planning and strategy for the whole Division should be developed to the highest degree of efficiency. Here should lie one of the considerable advantages in unifying all the Company's interests in the one Agricultural Division. This important

function will be the responsibility of one deputy chairman—Mr. K. H. L. Cooper—who will also be responsible for all the Division's public relations, except in agricultural affairs which will lie with Mr. R. A. Hamilton.

Closely tied in with the strategy is the purchase of the raw materials, which for the whole Division is by far the largest single item of cost. New sources and deposits of all the main raw materials—oil, phosphate rock, potash and sulphur—have been discovered in recent years. It is a problem of keen commercial and political judgment not only to decide which source of supply is the most favourable for immediate purchase, for forward purchase, in spot lots, as short term contracts and as long term contracts, but also to guide the Division's planning of research and development on probable future raw materials. It was a study of

this kind which led to Billingham Division's highly successful development of its pressure steam reforming process. Considerable wisdom is also needed to see beyond an immediate crisis in a raw material supply. Thus, fourteen years ago the world supply of sulphur appeared to be desperately below the world's needs, and few people had any hope of improving the supply to a sufficiently great extent. Today, as a result of the efforts of the geologists, the technologists and the suppliers of capital, more sulphur can be produced than the world needs, and this situation seems likely to continue.

Since all these raw materials come from overseas countries, a close and continuing knowledge of the political and financial stability of these countries and their likely rate of technical development is essential to the purchaser. Most of these countries and neighbouring countries of a similar

state of political development are purchasers of the Division's export trade of several million pounds annually, and therefore both the Division's supplies and its export sales policy have been made the responsibility of one director, himself responsible to Mr. Cooper.

In addition to its major responsibilities in the UK market and in export sales from the UK, the new Division will be responsible for maintaining contact with all ICI's associated and subsidiary companies overseas on all problems, technical, commercial and agronomic, related to agricultural chemicals. As, therefore, the unification of the home organisation proceeds, the new Division Board should be able to play a greater part in strengthening these links between ICI at home and its overseas companies. Each of the main subsidiaries has an interest in supplying the agricultural market, but in each the interest has developed differently from that of the parent company and from that of the other subsidiaries. African Explosives and Chemical Industries Ltd., which has a very long experience in superphosphate manufacture, originally started to make use of waste acid from explosives manufacture; and the company has a quite long experience in ammonia and ammonium nitrate manufacture; for which Billingham has provided technical assistance over a number of years. More recently AE&CI has undertaken urea manufacture, for sale mainly as a fertilizer in South Africa. Canadian Industries Ltd. has a similar experience in superphosphate manufacture for similar reasons, but only in recent years has it built an ammonia plant. It also wholly owns the Chipman Chemical Co. Ltd., which sells plant protection products. Imperial Chemical Industries of Australia and New Zealand Ltd. has manufactured ammonia in relatively small units for a number of years, mainly for industrial use; it is now building much larger units and making a major entry into the fertilizer market. It also has a valuable turnover in plant protection chemicals. Concentrated complete fertilizers which have been used in the UK for a generation are only now developing significantly in these countries, whereas the plant protection market is relatively highly important.

For many years these companies have attempted an interchange of information, experience, and staff trained in agricultural chemical problems, but the achieve-

ment has as yet been on a small scale. Thus, in Britain during the last decade there have been major Company-wide conferences on urea and on agricultural chemical marketing, but there have been no similar conferences overseas. There is little doubt that closer co-operation between all these companies could strengthen the competitive ability of each, could improve the research attack on common problems, and enable the Company as a whole to plan its export marketing more effectively. Fertilizers and plant protection products have been world commodities for many years, and it is possible that ammonia itself in the years to come, when certain shipping problems are solved, could become a commodity of world trade. Some of the world's largest companies in the chemical business, and particularly those oil companies which have become large chemical producers in recent years, also operate on a world basis in competition with ICI companies. It is essential, therefore, that if ICI is going to meet competition from such companies in any one agricultural chemical or in all the many, and is to continue to expand its agricultural business at a high rate, it must also think and operate on a world basis.

Supporting these planning, purchasing, production and sales activities are two forms of research and development, each the responsibility of a deputy chairman: industrial, Mr. S. D. Lyon; agricultural, Mr. R. A. Hamilton. The agricultural research and development is centred at Jealott's Hill Research Station, where in recent years there have been two independent sections of research, one for fertilizers and one for plant protection products. After 1st May these will be coalesced into one unit. The unit will provide the basic search for new effects in fertilizers and plant protection products, separately and jointly, from which targets for the industrial research on products and processes can be defined. The importance of this section of research work is illustrated by the world-wide success of the outstanding Jealott's Hill discoveries of M.C.P.A., benzene hexachloride, Diquat and 'Paraquat.' The station will also be responsible for the application research on probable new products and on established products, from which can be derived the technical and agronomic advice to be given by sales representatives to customers. Some of the results in this applica-

tion research will be incorporated as necessary in the operations of the three demonstration farms. The estate surrounding Plant Protection Ltd.'s headquarters at Fernhurst, which is operated as a commercial horticultural unit, will continue to be used to some extent for demonstration. In addition to his responsibility for Jealott's Hill and as chairman of Plant Protection Ltd., of Richardsons Fertilisers Ltd. and of Ulster Fertilisers Ltd., Mr. Hamilton will be responsible for the Division's public relations in agricultural circles.

The industrial research and development will be centred at Billingham but there will continue to be a small SAI unit at Leith. One aim of the Billingham laboratory will be to keep the technology of production of existing products ahead of that of competitors. The world-wide success of pressure steam reforming—there are now thirty-eight licensees—indicates the kind of commercial transformation which can be obtained from a process improvement, and there are advances possible in other processes operated by the Division. The laboratory will also have the duty of converting the work of the Jealott's Hill soil chemists, botanists, entomologists and so on in agricultural research into new commercial processes and products, and strong links will need to be forged between the two establishments.

The article has discussed so far only the interests of the new Division in agricultural chemistry. In the manufacture of synthesis gas, ammonia and fertilizers, other chemicals are made either as by-products or as products in their own right—methanol, formaldehyde, urea, various building products, 'Drikold' and liquid CO₂, nitric acid, sulphuric acid, argon and so on. These will still be marketed by the new Division, and will be grouped in one business area under a director responsible to the technical deputy chairman.

By the time this article is published I shall have retired from leading this new Division. There is a keen spirit throughout the Division, and I am convinced it has a successful future to look forward to in many parts of the world. Employees and customers both have a vital interest in that success. I wish them all a fast-growing market, exciting new and better products, with better processes to keep the final effective cost as low as possible.

Tom Stalker-Miller



Pedas Gorge viewed from the train window

TRAVELLERS' TALES

A representative visits BORNEO

By Richard Hirst

My job in ICI (Malaya) Ltd. is to provide agricultural technical service throughout Malaysia and to maintain a close liaison with Departments of Agriculture, private research organisations, and the larger rubber, palm oil, and other estate groups and their technical managements. In a territory ranging 600 miles north to south and 1000 east to west, with a population of under 10 million and between 1½ and 2 million acres of estates, there is a lot of ground to cover.

I live in Kuala Lumpur, the Malaysian capital, and normally spend four weeks of the year touring the Borneo territories. In Sarawak we are represented by two agents. In Kuching, the capital, where on my last trip—just before the formation of Malaysia—I spent about three days, most of the time was taken up with visiting the Government agricultural offices in company with a representative of the agent who looks after our fertilizer business.

We discussed the progress of current research, in particular on the manuring of pepper and the effect it will have on future fertilizer requirements. All the agriculture in Sarawak is in the hands of Asian smallholders, who are regularly visited by a senior Asian technical representative from our Singapore Sales Office. There is thus little practical benefit to be obtained from farm visiting by European staff.

A day and a half spent in Sibu, the second largest town in Sarawak and an hour by plane from Kuching, was in complete contrast. There the bulk of my time was spent visiting timber merchants, to acquaint them with the advantages they might reap by using ICI as the source of their timber preservatives.

Both Sibu and Kuching were full of troops, and the air of tension, which later gave way to fairly tightly controlled riots, was very marked. Of outward effect on life

there was little sign, however. There were more people trying to sleep in fewer hotel rooms, and the standard of food had actually risen. There are a fair number of hotels providing "European type" accommodation and food, but invariably they also provide Chinese food, which I prefer, as it is usually better cooked. There are also many "Chinese type" hotels, which are usually more primitive and often without attached catering facilities.

From Sarawak to Jesselton, Sabah, takes about three hours by air—one mostly flies, goes by water or walks in Borneo.

And what a contrast British North Borneo was to Sarawak! Troops were no longer in evidence, and it was not until I got to Tawau, almost on the border of Indonesian Borneo, that I saw any at all—nor was there any air of tension, almost an air of festivity, and the preparations for Malaysia Day were already unconfined.



Not only is there a difference of atmosphere between Sarawak and Sabah, but there is a marked difference in the character of my work. Unlike Sarawak, there is a relatively large European-managed estate community, and in any one trip I attempt to visit about 80% of these estates.

Jesselton is the terminus of the British North Borneo Railway, along which I rattled and shook in a railcar to visit six of the estates, to which the railway is the only means of access. This particular trip was more eventful than usual, as in the Pedas Gorge the line was blocked by a fallen tree and the railcars were running a shuttle service on each side of the blockage. The section through the gorge is one of the most impressive pieces of railway that I know. The photograph will give some idea. I spent two nights up the track, one at Beaufort and one at Tenom, staying at Government rest houses on both occasions.

These rest houses are virtually hotels, subsidised by the Government and run primarily for the benefit of Government staff on tour but also available to the genuine traveller.

On returning to Jesselton, having negotiated the fallen tree for the second time, I flew on to Sandakan, the most important business centre of Sabah, Jesselton being the political centre. There is only one estate accessible by road at the moment here, but road building is proceeding at such a pace that on my next trip I expect to be able to visit two or three more estates by road. The other estates in that area are only accessible by water. I always seem to have some sort of a "Jonah" effect on river transport, and this trip was no exception. The boat just did not materialise. A second broke down before it arrived at the wharf, and I eventually got off in a relatively slow boat with an engine sadly lacking in its advertised horsepower, all of which meant a total delay of some 4½ hours.

There was great excitement as I arrived at the first estate, as the manager had just shot a 20 ft. python, which had been caught in a flash flood of the river and was trying to climb out by the estate office.



Top: A python held up by Cocos Islanders, Tungud Estate, Sabah

Centre: A diesel railcar in the Pedas Gorge

Bottom: Fishing village near Sandakan, viewed from the catamaran



Top: A Dyak in a sundries shop, Kunak. Note the tattoo marks

Bottom: The ones that did not get away: Kunak

embryo, the progress being only the clearing of jungle and the establishment of a nursery, a contrast to the previous day's visit to an estate established just over two years, where nearly 1000 acres had been planted and fully 1000 more were being cleared. The return to Sandakan was made in a glassfibre twin outboard catamaran, in luxury and at speed.

A 35-minute flight brought me to Lahad Datu to meet some normally inaccessible estate managers. The next day I went by launch across Darvel Bay to the first estate so far to bring oil palm to bearing in Sabah, only 18 months before.

I went next to a neighbouring estate converted recently from tobacco to oil palm following a change of ownership. They will have 2000 acres planted within two years and more land cleared. Back to Lahad Datu, two hours by launch, and the next day a 35-minute flight to Tawau, brought me to the end of the line at last.

In Tawau the troops were again evident, there being considerable concern over the possibility of border incidents with Indonesia. These have, in fact, since occurred. My work here involved visiting

another branch of our agents; the largest single estate unit in Malaysia, Borneo Abaca Ltd.; a Colonial Development Corporation project, and touring the recently established cocoa-growing area.

From Tawau to Singapore is a full day's travel, allowing for a lunch break in Jesselton, whence, after an overnight stop, I got back to Kuala Lumpur.

What had I achieved in 25 days? I could reckon up a sum of 46 visits to Government offices, commercial offices and estates; discussion or contacts with 128 people; and sleep in 15 different beds. I had made twelve flights, one return railway journey, and four boat trips. By way of positive return, I had been able to bring myself up to date with recent development progress, to isolate some causes of complaint from our customers and agents, and to show the flag to others. Were my journeys, as they used to say in the war, really necessary? There may seem little positive to show for them, but I for one am absolutely convinced that they were, for foreign markets, like home constituencies, need to be nursed if the electors—or the customers—are to vote the right way!

Water for ICI Works

by J. L. Hewson

Few people would deny that among the basic needs of most manufacturing industries is an adequate and unfailing supply of water. Also generally accepted is the fact that selection of a site for a new factory or the expansion of an existing undertaking may well be largely dependent on the assurance of availability of water in sufficient quantity and of the right quality, even in the driest of years.

The British chemical industry as a whole is a very large and rapidly growing user of water. It already has, in fact, a bigger water requirement than that of any other single industry—with the exception of power generation by the Central Electricity Generating Board.

ICI's chemical works are no exception to this trend. Indeed, the extent of the thirst of some of our larger manufacturing units is really quite extraordinary. For example, to supply the whole of the Billingham factory site there has to be a total water intake of some two hundred and fifty million gallons every 24 hours—a quantity roughly the same as the average flow of the River Thames at Reading. The mid-Cheshire and Merseyside works of Mond Division now have a total water requirement of about the same amount. Those whose knowledge of water supply and use is limited to that which is piped to the average household might understandably ask: where does all this water come from, and for what purposes is it used?

Sources of water used by ICI

A modern chemical works generally obtains its water from a variety of sources. First there is the mains supply from a statutory supplier, such as a local authority or a water board. Mains water must, of course, be hygienically pure and wholesome and at all times fit to drink. Every factory must, by law, have a properly installed supply of drinking

water, and this is universally used in all drinking fountains, washrooms, canteens, laundries and other employee amenities.

Frequently, when the requirement is not large and the quality is suitable, mains water may also be used directly in manufacturing operations. However, such water can prove rather expensive for industrial use in bulk, and it is therefore often preferable to obtain industrial supplies by direct pumping from a local stream or river or a borehole within or near the works. Borehole water is in general limited in available quantity—usually not exceeding half a million gallons a day for each well (less, if there are more than one or two wells within a square mile)—but it is clean and of constant low temperature. River water, dependent on local circumstances, may vary widely in available quantity and quality: the quantity of water in the smaller rivers and streams varies with previous rainfall, particularly that collected in the upper reaches, and the quality with the distance the river has to travel and the amount of pollution received in relation to the total flow. In a dry summer the flow of water in many streams may dwindle to very low rates, the temperature may rise, and effects of pollution become so marked that the stream water is virtually unusable. For this reason it is often desirable to alternate the sources of supply, taking from the full-flowing streams in winter and from boreholes, with their cooler water, in summer. The winter resting of boreholes enables the underground water resources to be replenished and permits higher pumping rates in summer when the water is most needed.

However, by far the greatest quantity of water used by ICI works is pumped direct from large rivers, canals and even open estuaries. Generally this water, although unlimited in quantity, is rather dirty, and its use is therefore restricted to

purposes for which quality is unimportant. For a few selected uses in one or two works, straight sea-water is found quite satisfactory.

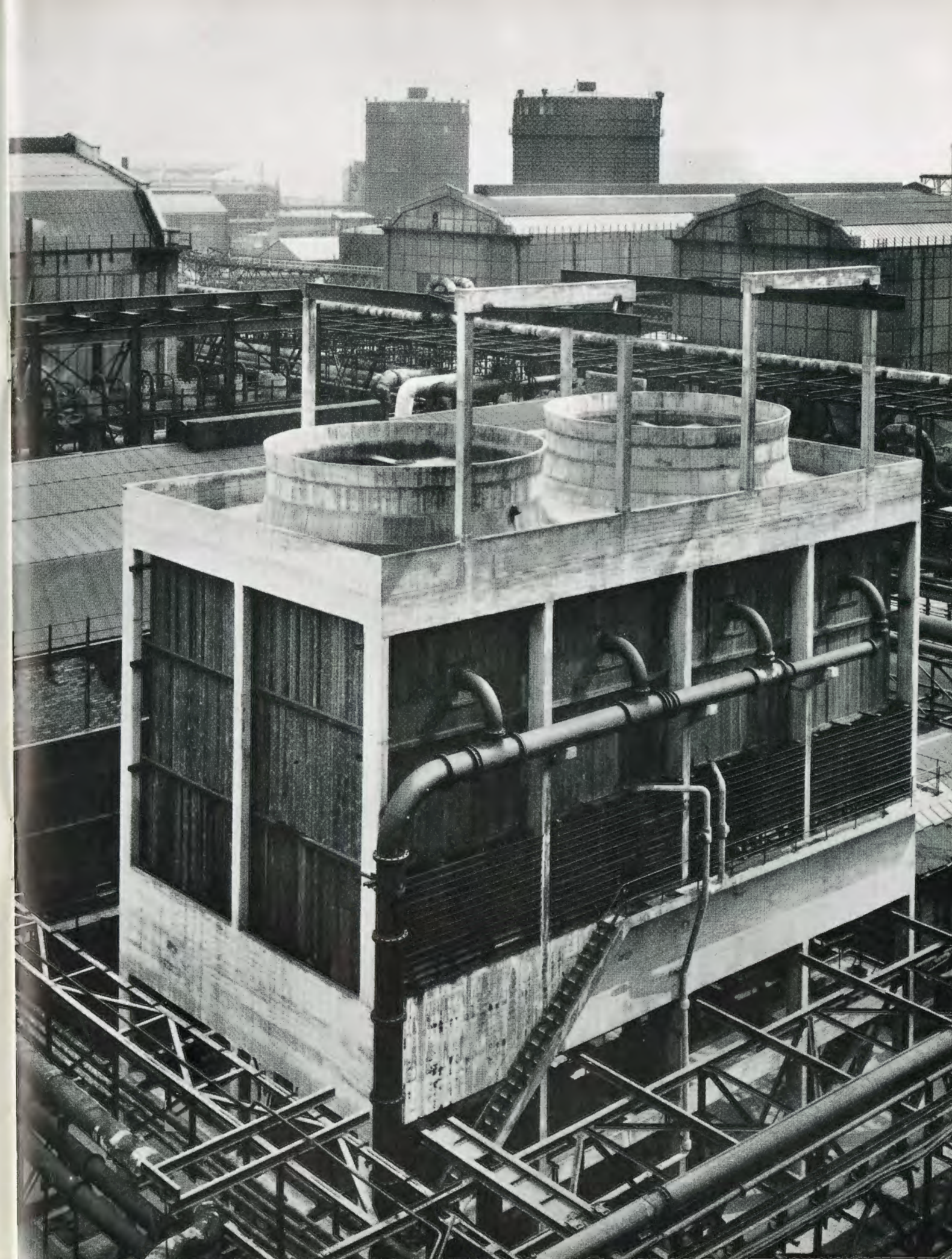
How water is used in chemical works

By far the greater quantity of water is used for cooling purposes. This may be untreated, even dirty, water drawn from an industrial river or canal, used once to cool some process or material and then returned to its source. Alternatively—and in recent years this has been done to an increasing extent—recirculation systems may be installed in which the same water is used over and over again, heat being removed from it by passing through large atmospheric cooling towers. Where recirculation is practised it is essential that the chemical quality of the water should be kept within strict limits and that make-up of water lost to the system—amounting to some 5–10% of the water recycled—should be of as high a quality as possible. In newer ICI works, such as Wilton and Severnside, cooling water supplies are all on recirculation systems. Older works, originally on “once-through” systems of cooling, are gradually converting to recycle cooling as opportunity permits.

Apart from cooling purposes, water is required in chemical works for a wide range of process and washing purposes. It may be employed as a solvent, as a chemical reactant, as a conveyor of materials or wastes, as a feed for boilers and so on; it may also be used in vast quantity for various processes of washing materials and products, for cleansing plant, vessels, vehicles, floors and so forth.

In the multitudinous “process” and “washing” uses of water, the question of desirable quality for the purpose is often of special importance. While for some uses

A concrete water cooling tower at Billingham Factory



a raw river water—so long as it is clean—may be satisfactory, in an increasing number of instances a particular quality is needed. Mains water, although perfectly suitable for drinking purposes, is sometimes unsatisfactory for works use without further purification. The feed water for high-pressure boilers, for example, needs to be of particularly high purity, and often quite elaborate processes of treatment are called for. In the manufacture of certain plastics, fibres, pharmaceutical chemicals and others it is frequently necessary to use only specially prepared water of a purity specified for the purpose.

Water treatment is a specialised technology which has been studied closely in ICI for a long time. The accumulated

experience has not only been of considerable value through the years to Divisions in solving their own water purification problems, but it has been made available as a technical service to industry at large by the Alfloc Water Treatment Service of Mond Division.

Is there a shortage of water?

Given a sufficiency of water from any source, there is no particular technical difficulty in producing the quality for any normal purpose in chemical manufacture. As with most things, the main problem is that of finding the cheapest way of providing the desired quality of water from alternative sources by a variety of possible treatment methods.

Much has been said and written recently

about the rapidly rising demands for water, not only by expanding industry but also by the domestic consumer enjoying improved housing standards and the vastly greater use of water nowadays in agriculture, especially for spray irrigation. The total demand for water in Britain today is about 50% higher than it was in 1945. It is expected to continue to increase by some 3-4% every year in the foreseeable future. Clearly, if expansion of industry and agriculture and the continued improvement of living standards are not to be impaired, the problem of securing greatly increased water supplies

An ICI pumphouse for the abstraction of 230 million gallons per day from a tidal reach of the River Tees

for the future has to be recognised and long-term plans laid accordingly.

In this country the problem is not so much one of shortage of rain, even in so-called "drought" years; it is rather that of better conservation of rainfall where it occurs and the economic transference of collected water from the wetter to the drier parts of the country. Overall, less than about 10% of the rain that falls becomes available for use. The rest either evaporates or runs quickly to the sea.

The essentials of conservation include both the building of strategically placed dams and reservoirs and the control and protection of natural water resources, whether these are on the surface in lakes and streams or underground in water-bearing strata. The long-distance trans-

ference of water impounded in rural areas of high rainfall for use in more densely populated or industrialised areas is becoming increasingly necessary. This involves either the installation of long pipelines or the use of existing rivers or canals as aqueducts. Nowadays it is more difficult than ever to find suitable sites for the construction of reservoirs, so that better management of the existing catchment areas and flow of water in the main rivers has become imperative.

The passing, last year, of the Water Resources Act brought about major changes for the administration of the water resources of England and Wales. Under the Act new regional river authorities are

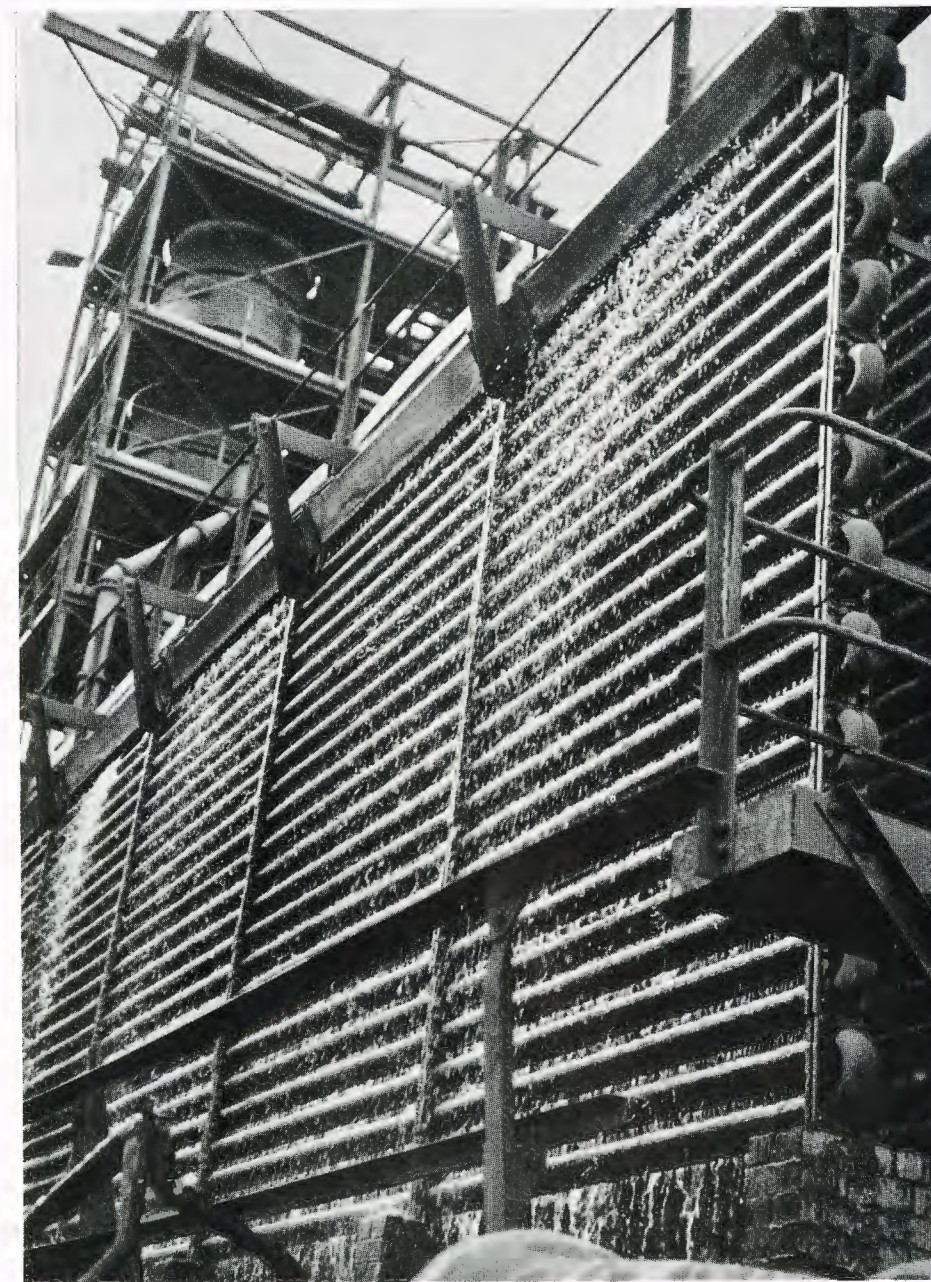
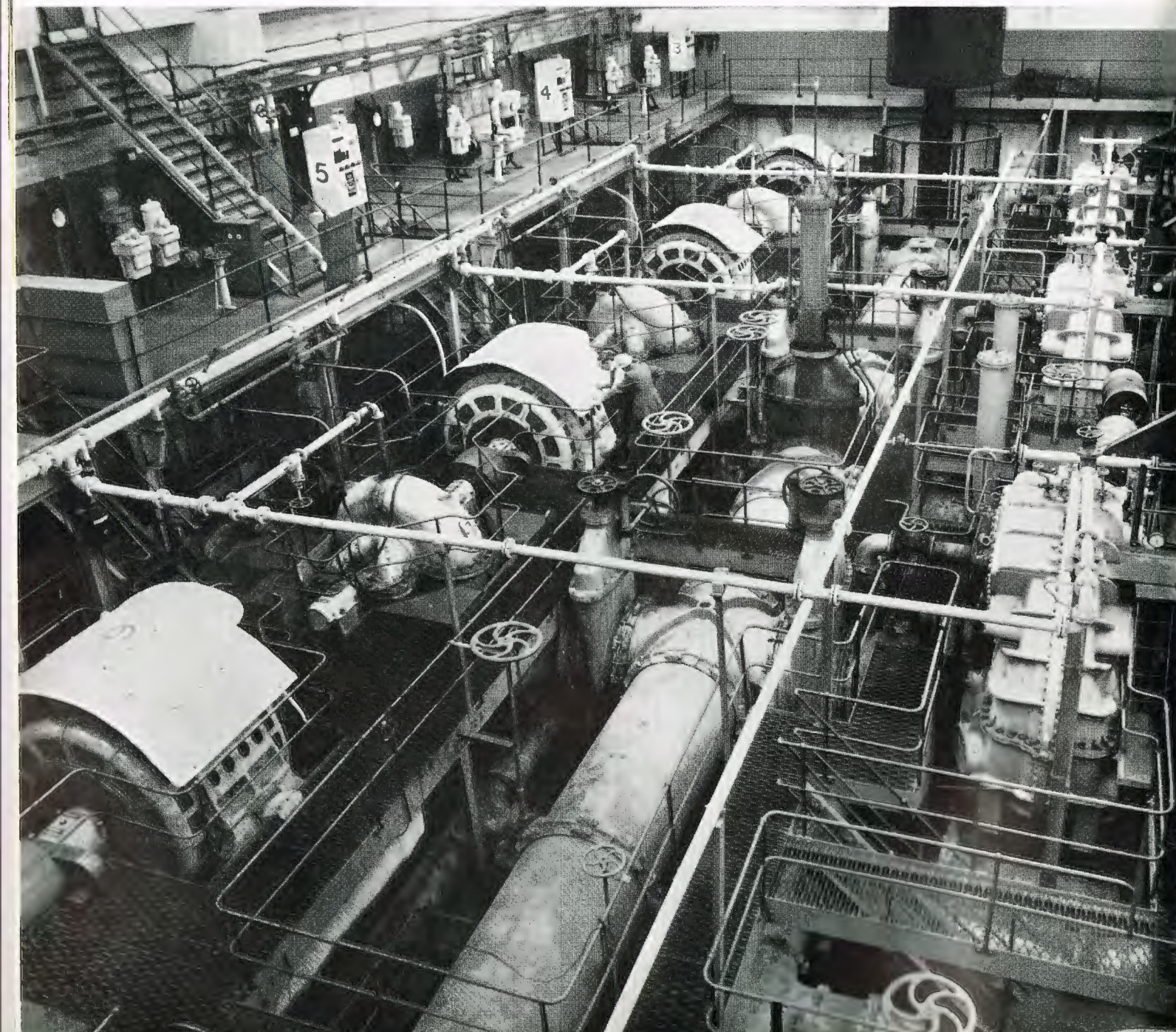
A "serpentine" water cooler

being established with responsibility for the management of the resources of river basin areas. Their work will include water conservation, land drainage, and the prevention of pollution. They will have full control of the abstraction of water from all sources by a licensing system with the object of ensuring equitable distribution of existing and the provision of additional supplies. These new measures have been generally welcomed by industry as providing, for the first time, a comprehensive policy to meet greatly increased demands for water in the future.

What will be the effect of the new measures on ICI works, most of which envisage an increasing water requirement in the next ten years? One result, undoubtedly, will be that water will come to be regarded more and more as a commodity of value, to be treated rather as an important raw material than as something free like the air. The proper management of water resources by the river authorities and the provision of new supplies will involve cost which will have to be met by charges on abstractors. This new concept of raw water with a basic price before treatment and distribution will surely encourage greater economy by users and thus contribute further to conservation.

Prevention of pollution of surface and underground water by sewage and industrial effluents—especially chemical works effluents—is bound to receive increasingly close attention by river authorities in the future. Quite apart from the safeguarding of amenities, there is a growing urgency to clean up polluted rivers to enable them to be made available for future water supply. Effluent treatment, either to improve works waste water discharges to rivers or to permit their recirculation within works, is becoming imperative. This is calling for increasing expenditure on research, the provision of new plants and, generally, a higher proportion than ever before of the time and effort of ICI staff at all levels.

Water, for so long taken for granted as something that flowed freely from a tap or to be picked up for nothing from a nearby stream, is now being looked upon as a vital and valuable raw material, the future provision of which must be as carefully planned as any other basic necessity for production. Water, hitherto a Cinderella, is at last attracting some attention.



Our man in LIMA

Sweeping up the west coast of South America, the icy Humboldt Current plagues the shores of Peru with recurrent fogs and almost perpetually overcast skies. It also brings an apparently inexhaustible supply of anchovies, making Peru second only to Japan among the world's fishing nations.

Viewed in terms of potted meat and cocktail savouries, the possibilities for anchovies seem limited. But Peru's king-size anchovies are all indiscriminately ground up into fishmeal—one of the finest animal feedingsuffs there are. Thanks to the fact that fishmeal rapidly goes rancid (a process that destroys its protein and vitamins), and thanks to the presence on the spot of our man in Peru, go-ahead fishmeal manufacturers will soon be adding to every ton of their product a few ounces of a fine white powder—'Topanol' antioxidant from ICI—that safely checks rancidity.

If Peru were full of industries into which sophisticated chemical products fitted like this, life would be easy for David Nock, manager of ICI Peruana. As it is, this expatriate Yorkshireman has, by European standards, a very difficult selling job.

His office in Lima is separated from London by 8000 miles of jungle, mountains and ocean. But Peru's remoteness from Britain is not so much geographical (what's 8000 miles in the age of air travel?) as social and historical.

Its history has been bloody, even up to 100 years ago. Its population—and this in a country the size of Spain, Portugal, Belgium, Holland and Switzerland put together—is only 12 millions now; but three-quarters are Indian or Creole, and the birth-rate is as high as China's. The terrain varies from vast mountains and steaming forests to a coastal desert where it last rained in 1925. The mountains are full of copper, silver, lead and zinc, and the irrigated parts of the coastal plain bear profitable crops of cotton and sugar. But the "explosion" of industry that has shot so many nations to prosperity in the mid-twentieth century seems a long way off.

Against this exotic backcloth David Nock goes about ICI's business, assisted by another Englishman and 24 Peruvians. There is a steady trickle of demand for the

goods he can supply: plastics such as 'Alkathene,' PVC and 'Perspex'; dyes for the local textile industry; alkalis for soap and glass; various products for tanneries; 'Terylene' for clothes. What Nock and his sales team look for, day in and day out, is new opportunities of the 'Topanol'-for-fishmeal kind.

Looking for new customers in a country like this is an unglamorous, often unrewarding job that might depress someone less sanguine and solid than David Nock. When he first went to South America in 1949 he earned the nickname *la aplanadora*—the steamroller: earned it, in fact, by his style of play as a Chilean rugby international; but it gives a clue to the kind of doggedness he also brings to bear on his work.

Nock's six-year spell as a techno-commercial assistant with ICI (Chile) was his second job with ICI; the first was as manager of a caustic soda chlorine plant on Tees-side, whence he had gone direct as a young chemistry graduate from Manchester University. Somehow, nine years in Peru on top of six in Chile have left little obvious mark on him—perhaps because in Lima the foreign colony occupies an isolated and sometimes slightly uncomfortable position between the rigid social strata. With his wife and three children (though more often with one, since two go to school in England) he lives in a pleasant suburb of Lima, one of the most impressive cities in the hemisphere. But he confesses that amid all its architectural splendours he often longs for the Hallé Orchestra and the good grey virtues of what for him is still the *Manchester Guardian*. As a leading member of the British colony he takes the chair for the British Commonwealth Society and the Chemical Importers Committee and plays a leading part in the management of the British School and the British Trade Centre.

With the best will in the world, no one can predict that good times are just round the corner for Peru. But when they come, as they eventually will, chemicals will play their usual indispensable rôle in its industry and agriculture. Whatever success ICI achieves then will have been built on the solid foundations hewn out by David Nock and his predecessors. **M.J.D.**

photograph by John Garner



PEOPLE & EVENTS

Record sales and profits

The trading results of ICI and its home and overseas subsidiaries for 1963 show bigger sales, bigger exports and bigger profits. Group sales to external customers reached an all-time high at £624 million, which is £45 million up on the previous year's figures. Group income after taxation was £43.3 million as against £38.4 million. Exports from the UK were substantially higher than in 1962, reaching £114.8 million compared with £100.8 million, and sales of products manufactured by overseas subsidiaries increased in value by about 10% compared with 1962.

A final dividend of 1s. 2d. has been recommended which, together with the interim dividend declared last September, makes a total of 2s. per £1 unit. This compares with 1s. 10d. for 1962 after adjusting for the scrip issue.

£13 million expansion programme

Plans to spend a further £13 million on major extensions and modifications at Billingham Works, principally on two new ammonia plants and a new methanol plant, were announced by Agricultural Division on 31st January and were widely reported in the national and provincial press and on radio and TV.

Each ammonia plant will have a single stream capacity of 300,000 tons a year, which is 50% greater than the biggest plant announced to date in the world. These plants will, in the first instance, use naphtha as feedstock, but have been designed so that the ICI pressure steam reforming process employed can be readily adapted to the use of other feedstock, such as natural gas. The contract for the design and erection of the ammonia plants has been awarded to the Kellogg International Corporation.

The new methanol plant, with a capacity of 100,000 tons a year, integrates the ICI pressure steam reforming process with an improved methanol synthesis process developed in the research department of Agricultural Division. It

will be designed and built by ICI. The project, which is scheduled for completion early in 1966, brings the Company's total actual or planned expenditure since 1959 on the ammonia and fertilizer processes at Billingham, Heysham and Severnside to almost £40 million.

When perfection doesn't pay

Speaking at the recent annual dinner of the Institution of Plant Engineers, **Mr. S. P. Chambers**, ICI Chairman, criticised technical specialists who in striving for perfection in their own sphere become blind to the overall objectives of their company. The further one was removed from the actual selling of a product the harder it was to realise and adopt the overriding objective of an industrial company, i.e. to make products of a given quality as cheaply as possible. "Indeed," said Mr. Chambers, "an appreciation of this objective is not normally regarded as part of the training of the engineer in this country. In my view it is an essential task of top management in a large industrial undertaking to ensure, not only that every member of the productive process, from research workers

at one end to salesmen at the other, knows what his own tasks and responsibilities are, but also how his work fits into the operations as a whole. Nobody should be aiming at perfection in his sphere 'at all costs,' because this condition 'at all costs' is inconsistent with the manufacture and sale of products competitively. The perfectionist—who may be an engineer or accountant or any other professional—can so easily insist upon doing something worth £20 at a cost of £100 without recognising his error.

"It is perhaps significant that in the United States the number of people required to supervise, operate and maintain a plant is generally about half the number required to operate a comparable plant in this country. Some part of the difference is due to greater mechanisation and the availability of power at about half the cost in this country. But another factor undoubtedly is the greater sensitivity in America to competition and to the awareness of the need to keep down all costs, including costs of supervision and maintenance, in order to make profits in the face of competition. In the economy of plant operation I

believe we have still much to learn from American practice."

Mr. Chambers continued: "Our technical standards in Britain are high, but on the whole I believe we would achieve lower costs and greater efficiency if we gave greater individual responsibility, had less supervision—this goes with giving greater responsibility—and relied more on the intelligent exercise of judgment by plant managers and plant engineers."

He summed up by proposing this philosophy for those engaged in modern industry: "In the subordination of technical perfection as an objective to the task of making the maximum contribution to the overriding objective of profitable production, I am proposing for the plant engineer what should, in my view, be the philosophy of everybody engaged in modern industry. In real life, technical perfection is an illusion, and the art is to achieve a balance based upon economic conditions and human needs. I believe that a comprehension of the wider objective, instead of concentration solely upon technical excellence, will give the plant engineer a better sense of purpose and a better life."



Mr. Jim Fishburn, former senior instructor at the Billingham Apprentice Training School, has come back to the blackboard from retirement to instruct unemployed boys from Tees-side in a six-month basic industrial training course being held on Agricultural Division premises at Billingham. The course, first

suggested by ICI, has been arranged in conjunction with the Ministry of Labour, the trade unions and local authorities, and has the object of providing unemployed youths with a foundation for any of a wide variety of jobs which could occur on Tees-side in the future



Mr. Callard



Mr. Rose

New director

Mr. E. J. Callard joined the ICI Board at the beginning of the month from Paints Division, of which he had been a director since 1951 and chairman since 1959. A Cambridge man with a first-class tripos in mechanical science, Mr. Callard joined ICI at Billingham in 1935. He moved to Slough in 1947 as deputy chief engineer and four years later joined the Paints Division Board as engineering director.

He made his impact on Paints Division at a time when it was necessary for the works of Paints Division to be transformed from traditional manufacturing sites to modernised paint factories to satisfy the growing demand for the Division's products. Shortly before Mr. Callard's appointment as Division

chairman, ICI (Hyde) Ltd. was added to the Division's responsibilities.

The period of Mr. Callard's chairmanship has been characterised by a rapid expansion of the Division's activities at home and investment particularly in paint activities overseas. Paint factories have been erected in a number of Commonwealth countries and interest acquired in European manufacturers, the most notable of which are the purchase of Spangenberg-Werke GmbH in Germany and Weesp-Plastics NV in Holland. The Division also entered into wallpaper manufacture through the purchase of the Withins Paper Staining Co. Ltd. and the Rochdale Wall Paper Printing Co. Ltd.

In his years with Paints Division Mr. Callard has travelled overseas

extensively on Company business visiting the Division's paint-making associates.

Outside work his recreations are sport—rugby, cricket, tennis, squash and golf, all of which he has played at one time or another, he says, "without distinction but with much enjoyment"—and gardening. Mr. Callard is married and has three daughters.

New Division chairman

Mr. John Rose, who takes over from Mr. Callard at Slough, joined Paints Division in 1959 as a joint managing director. All his earlier service with the Company, which he joined as a research chemist in 1935 after doing post-graduate research at Oxford and in Switzerland, was with the Dyestuffs Division. He was appointed research director of this Division in 1951 and production director in 1958.

Since his arrival at Slough one of Mr. Rose's main preoccupations has been the development of ICI's wallpaper interests, and he is chairman of Withins Paper Staining Co., ICI's wallpaper manufacturing subsidiary. He has also been concerned with the development, in conjunction with the Pressed Steel Company, of the 'Electrocoat' process, announced elsewhere in this issue.

Mr. Rose shares with **Dr. A. Caress** and **Mr. H. Smith**, all of them ex-fellows of the Salters' Institute of Industrial Chemistry, the distinction of being a freeman and liveryman of the Salters' Company, and a freeman of the City of London. He is married with two children, and his hobbies are cars and the civil and mechanical engineering aspects of gardening.

Polypropylene fibre prices reduced

Big reductions in the prices of polypropylene staple fibre and 'Ulstron' filament yarns in the UK were announced by Fibres Division last month. These reductions, ranging between 15% and 29%, have been made possible by rapid expansion of production to meet growing demand.

Polypropylene, in the form of 'Ulstron' multifilament yarn, is at present used widely in the manufacture of fishnets and ropes, a large proportion of which are exported. Polypropylene staple fibre is finding increasing use in other industrial outlets, such as filter cloths and overalls, and blankets made from 'Ulstron'

polypropylene fibre were introduced to the public last October.

This is the second major price reduction announced by the Company for its fibres this year. Reductions of 'Terylene' staple fibre prices on 1st January brought ICI's prices below the published domestic prices of any other major polyester fibre manufacturer in the world at that time. The present reductions make ICI's polypropylene one of the cheapest synthetic fibres available in the UK.

New joint company in the USA

ICI is to form, with the United States Rubber Company, a joint company, Rubicon Chemicals Inc., to produce tolylene diisocyanate, the organic chemical used in the production of urethane foams, rubbers and surface-coating materials.

The new company will build a plant at Geismar, Louisiana, with an initial annual capacity of 25 million lb.

ICI, one of the first companies in the world to develop urethane technology, will supply the know-how, on the basis of which the plant will be designed and operated. The plant is scheduled to be in operation by mid-1965.

North Sea oil search

The Burmah Oil Co. Ltd., ICI and Murphy Oil Corporation are to participate jointly in the next phase of prospecting for oil and gas under the North Sea.

In this predominantly British venture ICI and Burmah Oil will each have a 45% interest, while Murphy Oil have 10%. The Burmah Oil Exploration Company, a wholly owned subsidiary of Burmah Oil, will be the operator for the group.

Last year Burmah Oil collaborated with Murphy Oil and four other companies in preliminary surveys in the North Sea, with the Atlantic Refining Company as operator.

Seismic survey work for the new group is scheduled to start this spring.

New plant for Wilton

Heavy Organic Chemicals Division announced early last month plans to build a 30,000 tons/year plant for the manufacture of vinyl acetate monomer at Wilton. The plant is scheduled to come on stream early in 1966.

A new and economical route to vinyl acetate which uses ethylene

as feedstock has been discovered and developed in HOC Division's research laboratories at Billingham. The traditional route uses acetic acid and acetylene or acetaldehyde and acetic anhydride. Low-cost ethylene will be available from the giant cracker announced in September last year which will raise ethylene capacity at Wilton from 140,000 tons/year to over 300,000 tons/year. At the time, this announcement led to speculation that apart from extension of existing uses for ethylene, especially for polythene, ICI might have new uses in mind.

Vinyl acetate, which is at present made in Britain only by British Celanese, a subsidiary of Courtaulds, and the Distillers Company, is used in a wide variety of industries, for example in the manufacture of emulsion paints, adhesives, textiles, paper and plastics.

CIL aids Olympic team

A chance conversation between a member of one of Canada's Olympic bobsled teams and a CIL employee led to CIL polythene playing its part in helping the Canadian Olympic team to win its gold medal. The CIL man was **Mr. Anson McKim**, product supervisor of CIL's Mastex films unit. Learning that runner covers for the sleds were needed by the team, he suggested that they might be made up by CIL in polythene film. The job was duly tackled by staff of the technical service laboratories and sixteen covers were made, to exacting specifications set by the Canadian Olympic team, for the four bobsled teams entered.

The covers came into use at the end of each run when the bobsleds were lifted on to grooved wooden "runner guards" and then hauled up the mountain for the next run. Since most other teams used no covers, they ran the danger of their runners being scratched or gouged from material collected in the grooves.

For the Olympic runs the covers did exactly what they were supposed to do—they kept the runners clean and so helped to shave off the split seconds which are the difference between gold and silver medals at the Olympics.

Rubi employee honoured

Señor Manuel Murillo Iglesias, alcalde of Rubi near Barcelona, who is employed as manager of chemical processes at the zip fastener factory, of S.A. Azamón at Rubi, was recently decorated with the order of Encomienda de la Orden de Merito Civil. A free



Sr. Murillo

translation of the official citation reads:

"During and after the catastrophe of September 1962, which caused widespread damage and suffering, he at once placed himself at the head of the people of Rubi, and with heroic zeal, unlimited sacrifice and extreme diligence led the struggle against the floods, organised the rescue of the victims and the alleviation of their sufferings."

An alcalde is similar to the mayor of an English town but is appointed by the Spanish Government for an indefinite period and has rather more authority than his English equivalent. Señor Murillo was in fact appointed alcalde during the period of the floods and has been closely involved in all the work of reconstruction which became necessary.

ICI and all the factories of the Lightning Fastener group contributed to funds established at the time of the flooding. In addition, an ambulance was recently given to Rubi as a contribution to the reconstruction of the town. The formal presentation was made on 25th January at a special ceremony inaugurating the reconstruction work carried out in the town and commemorating the 25th anniversary of the entry of National troops into Rubi.

Portuguese 'Terylene' project ICI has concluded an agreement with Francisco Fino Limitada, an old-established Portuguese worsted manufacturer, to form a joint company, 'Finicisa' Fibras Sintéticas S.A., to manufacture polyester staple fibre in Portugal. ICI and Francisco Fino will each own 50% of the new company.

The plant, to be built near Portalegre, about 150 miles north-east of Lisbon, will have an initial capacity of about 5 million

lb. a year. ICI (Export) Portugal is to market the output of the new company and will control the use of the 'Terylene' trade mark.

This will be ICI's first venture in manufacturing 'Terylene' in Europe. Previously Continental manufacturers have been licensed to produce polyester fibre using ICI know-how. The current licensees are Rhodiacta in France ('Tergal'), Rhodiatocce in Italy ('Terital'), AKU in Holland ('Terlenka') and Farbwerke Hoechst ('Trevira') and Glanzstoff ('Dion') in Germany.

Slough's "first citizen"

Mrs. Winifred Watson, who works in the Accounts Department of Paints Division, has been elected mayor of Slough for the coming year. Mrs. Watson, who takes office as Slough's first citizen next month, is both the first employee of Paints Division to be elected to the office of mayor and, as far as we know, the first woman employee anywhere in the Company to achieve this distinction.



Mrs. Watson

She has been an alderman since 1961 and before that was a councillor for 11 years. For the year just ending she has been deputy mayor, and she was also deputy mayoress in 1954, when her husband, whom she met on the council, was deputy mayor.

Mrs. Watson is currently chairman of Slough parks committee and a governor of two local schools.

Gardeners' Sunday

The grounds of Warren House, ICI's staff training college at Kingston-on-Thames, are to be opened to the public under the Gardeners' Sunday Scheme on Sunday, 3rd May, from 2 to 6 p.m. Last year on Gardeners' Sunday Warren House had nearly 2000 visitors and £106 was collected for the Gardeners' Royal Benevolent Society and the Royal Gardeners' Orphan Fund. Warren House is especially noted for its splendid show of azaleas and

rhododendrons, and in addition to the gardens there will be a flower display staged by the County of Surrey Flower Arrangement Association.

Warren House is only one of hundreds of gardens up and down the country being opened to the public in this cause this summer. They are listed in a booklet obtainable through W. H. Smith bookstalls or from the Organiser, Gardeners' Sunday, White Witches, Claygate Road, Dorking, Surrey (price 1s. 3d., including postage).

A new painting process

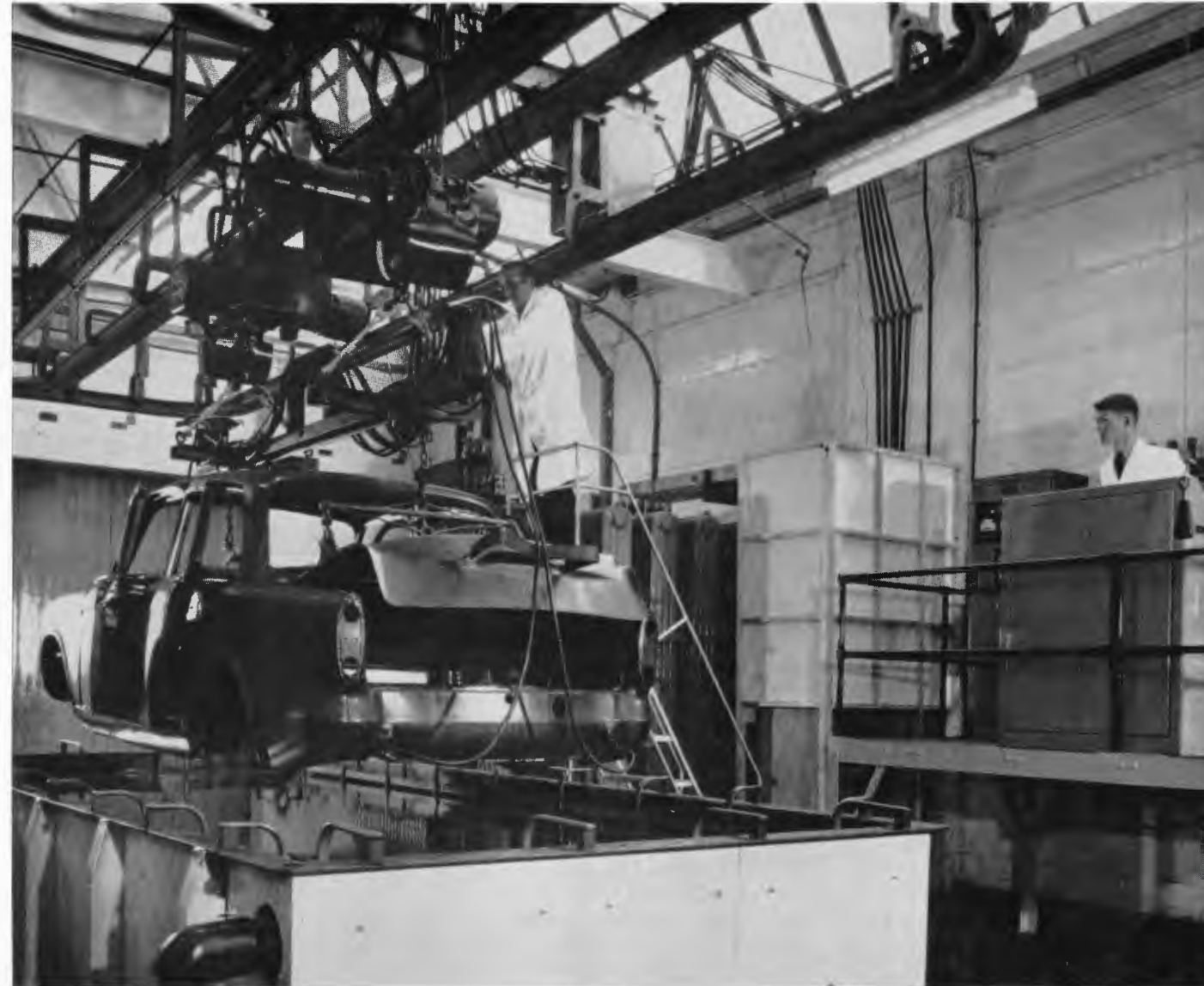
Few drivers will have given much thought to whether their car petrol tanks have been properly painted internally—unless, of course, corrosion causes a leak and they run out of petrol on a dirty night!

Yet the efficient and uniform painting of the inside of objects such as car petrol tanks is a problem which has only recently been solved—by the 'Electrocoat' process. Developed jointly by Paints Division and the Pressed Steel Company, the first industrial 'Electrocoat' plant for painting car petrol tanks internally and externally in one operation went into full production early this year at Pressed Steel's Cowley Works. The Company's 6000-gallon experimental tank for painting complete car bodies is another use of the 'Electrocoat' process which is interesting the motor industry.

Although the process of applying paint to metal surfaces by electro-deposition is complex, the principles are simple. The dip tank filled with 'Electrocoat' paint, consisting of resin and pigment particles carrying negative charges, is the cathode (negative). The metal object to be coated is made the anode, and the dip tank and object are connected to a D.C. current supply.

The negative paint particles are attracted to the positive metal object and, on reaching it, coagulate and are evenly deposited. The paint is fixed and cannot be washed off with water, and a short stoving period completes the process.

The process will be particularly valuable to manufacturers painting metal objects of intricate shape. Besides the motor manufacturers, equipment manufacturers of such varied products as car accessories, household and domestic appliances, agricultural machinery and miscellaneous electrical components, both at home, and in many countries overseas, are also showing great interest in the process.



Above: A 6000-gallon experimental tank for painting complete car bodies using the new 'Electrocoat' process, a joint development of the Pressed Steel Company and ICI Paints Division

Mr. S. P. Chambers, ICI Chairman, visited Rozenburg Works recently during a visit to Holland. After touring the factory, where he saw among other things the new 'Perspex' and 'Diacon' plants, both now in production, Mr. Chambers went on to Utrecht to give an address at the annual luncheon of the Netherlands Chamber of Commerce. Here Mr. Chambers is seen (second from the left) in the factory workshops talking to Mr. A. van Namen (third from the left), works general manager, and other staff





Above: A conference of senior secretaries drawn from the Divisions, Regions and Head Office was held at Warren House, ICI's staff training college, over the weekend 21st to 23rd February. This was the first time that a conference of this kind has been organised on a Company-wide scale and also the first all-female course to be held at Warren House

Top: This prototype hazard warning sign made by Franco Traffic Signs Ltd. of Colindale and using an optical system developed by Plastics Division, is to be installed on the Birmingham-Bristol M5 Motorway. The optical system makes a number of warning legends, in letters 1 ft. high, stand out so that they can be clearly read from 200 yards or further away, even on a bright sunny day. In conjunction with the word "Slow" the alternative legends are "Skid Risk," "Accident" and "Fog." Each letter of the sign is made from a single sheet of 'Perspex' machined in the form of a prismatic lens. If the prototype proves suitable for its purpose, an additional 21 similar signs are to be ordered by the Ministry of Transport for a full-scale experiment on the M5

Successful launching of new company in India

Habits of dress are changing in India and purchasing power is slowly but surely spreading to a larger proportion of the population. Both factors augur well for the launching next year of 'Terene'—locally manufactured 'Terylene.' Some UK-produced 'Terylene' has for several years been exported to India, but the stringent import restrictions have made local manufacture necessary if the market is to be developed as it could be. The project is being pushed ahead with assistance from Fibres Division by a new company, Chemicals and Fibres of India, in which ICI has a 60% holding, and the factory near Bombay should be producing fibre early in 1965.

The Indian public was invited to take shares in the company, and was obviously enthusiastic about the company's prospects as fourteen times the number of shares offered (25% of the total) were applied for. The response was the more gratifying in that Indian stockmarkets have been depressed since the border incidents with China and few

companies have been prepared to risk a public issue.

Doctorate for Mr. Nonhebel

Mr. Gordon Nonhebel, who retired from the Chemical Engineering Services Department at Millbank last summer after a long career divided between Billingham and Millbank, has gained a signal distinction in the academic world. On 22nd February the University of Oxford conferred upon him the degree of Doctor of Science for his published work in the fields of fuel technology and chemical engineering.

This is, almost certainly, the first occasion that Oxford has thus rewarded work of such a kind, and it must be regarded as very gratifying that the quality of work done during the course of a scientific career in industry should receive such recognition. Mr. Nonhebel can be sure of the congratulations of all in ICI, but perhaps a word of appreciation to Balliol College also might be permitted for its acknowledgment of, dare we call it, the intellectual respectability of technology.

RETIREMENTS

Some recent announcements of retirements are: **Agricultural Division:** Dr. A. H. Lewis, director of Jealott's Hill Research Station; **Head Office:** Mr. W. G. Harrold, head of Tariffs and Trade Department (retiring 31st December). **The Regions:** Mr. F. Walls, regional sales manager (Plastics), Southern Region (retired 31st March). **ICI (India):** Mr. C. E. J. Crawford, Bombay director (retired 31st March); Mr. J. G. H. Phillips, personnel director (retiring 31st May).

Mr. R. A. Banks

Mr. R. A. Banks retired on 31st March after 40 years' service with the Company and 11 years on the ICI Board. Mr. S. P. Chambers, ICI Chairman, writes:

When Dick Banks retired at the end of March we lost from the Company an outstanding personality, forthright, modest, plain-spoken and humorous. It is in keeping with his character that he is a notable gardener and tree-lover, that he excels in personal relationships, that he has taken a keen and, better still, a practical interest in the Boy Scout movement, in the William Temple College for Christians of all creeds and in the Industrial Training Council, of which he is chairman.

In forty years with ICI he has filled many posts with distinction; more than eleven years on the Board of the Company, during which he spent six and a half as personnel director, and fourteen years before that on the Board of Alkali Division; with his formative years at Winnington and in India. For many of us, perhaps, his work as personnel director will remain the best remembered; when his quiet common sense and humanity led to sound policy decisions which will endure.

A good colleague, tenacious in his opinions but never obstinate, fair though disinclined to suffer fools gladly, generous, a man of strong principle but with a disarming readiness to laugh at himself and an engaging sense of the ridiculous—he will be greatly missed throughout ICI.

Those who knew him then say that in his younger days Dick played a fierce and competitive game of Rugby football, and tennis much above the average—where his height gave him a notable smash and a service to be remembered. He has kept his lean figure, to the envy of his colleagues.

When he was a bachelor, though



Mr. Banks

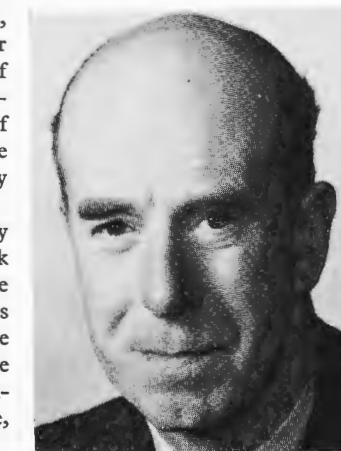
addicted to fast motoring, he lived for a time on a barge on the River Weaver and came to work by boat. One story which will never be forgotten is of a Fifth of November evening on the barge which ended in spectacular disaster when a large box of fireworks got alight and put everyone to flight.

Mr. W. d'Leny

Mr. W. d'Leny, chairman of Agricultural Division, retired at the end of March after 38 years' service. Sir Ronald Holroyd, one of ICI's deputy chairmen, writes:

Walter d'Leny was one of a succession of outstanding recruits from St. John's College, Oxford, in the 1920s. Arriving at Billingham in 1926, he found himself in a challenging situation as a member of a young and enthusiastic team battling with problems associated with the development of the still novel synthetic ammonia process. It must now give him immense satisfaction to know that Billingham, through the development of the new oil route to ammonia, is providing a new generation of chemists and engineers with the same exciting experience.

He has seen Billingham through many ups and downs. 1929 saw the



Mr. d'Leny

fertilizer business heavily hit by the general depression, and he moved to the new petrol-from-coal project. After doing invaluable work as a one-man technical department he was on production from 1933 to 1947 and as acting works manager had the exacting job of maintaining maximum output of aviation petrol during the war.

In 1947 d'Leny was seconded for special duties with Lord Fleck, then a member of the Main Board. He became Division research director in 1951 and in 1958 was appointed joint managing director. At that time many people feared that the loss of the petro-chemical side of its business to HOC would seriously limit Billingham's growth prospects, but d'Leny had the vision to see the potentialities of the change from coal to oil and of expanding agricultural activity. As managing director, and chairman since 1961, he has proved his faith by leading the Division through revolutionary changes to the strong position it has today.

Walter d'Leny, with his sound judgment and toughness belied by his sometimes casual manner, has contributed continuously to the Company's welfare over his 38 years, but his work in the last four or five alone is enough to ensure that his will be one of the most honoured names in the Billingham saga. All his friends and colleagues will wish him the best of health and happiness in his retirement, in which he should have every opportunity to indulge his love of the countryside and his horticultural and agricultural interests.

Mr E. J. C. Parker

Mr. E. J. C. Parker, Southern Regional manager, retired on 31st March after over 43 years' service. He joined the British Dyestuffs Corporation as a salesman at the beginning of 1921 and, after filling selling jobs in London and Bradford and having a spell at Blackley with the Division, was appointed Dyestuffs sales manager in London in 1942. He became deputy regional manager of Southern Region in 1946, went to Midland Region as regional manager in 1950, and came back to the Southern Region as regional manager just over a year later. He was a visiting director of the Dyestuffs Division from 1952 to 1959.

Mr. W. D. Scott, ICI commercial director, writes: Eric Parker will leave many memories behind—and all pleas-



Mr. Parker

ant. He was widely known throughout the Company and among our customers. Always ready with sound and friendly counsel, many people have been glad to draw on his experience and to enjoy his wit. During his time as Southern regional manager there were many changes among his subordinates, and all those who served under him will recall the experience with gratitude. He won the respect of all of them and the affection of those who knew him well.

The loss of his shrewd wisdom will be felt, and the young in particular will miss the wise judgment and leadership he always gave.

50 Years' Service



Mr. C. Moore
Mond Division
22nd February



Mr. J. Oldfield
Mond Division
23rd February



Mr. G. H. Roberts
Mond Division
15th January

'With-it' plumbing *by Gordon Long*

When the talk is all about how people resist the "challenge of change" I always like to think it doesn't apply to me—that I am, despite advancing years, one of the "with it" people. So it was entirely in character when, on moving into another house recently, I capitulated without much resistance to a wifely demand that we immediately install one of those much-advertised systems of central heating. In due course the system was installed and we were able to sit back at utter ease in our armchairs, wrapped in the warm embrace of set temperatures of 65°F downstairs and 60°F up, and admiring the decorations that, with 14 gallons of 'Dulux,' about 300 yards of wallpaper and goodness only knows how many packets of 'Polyfilla,' we had achieved between the two of us in seven months of hard labour.

Part of a good central heating installation, however, is, as you may know, the laying of some insulating material between the joists in the loft. This, they say, eliminates perhaps the biggest source of heat loss from any home—through the ceilings.

The insulation did its stuff all right—and how! Going into my loft last winter one felt like Amundsen stepping out of his tent at the South Pole, and one was glad to scurry down below again. With no heat reaching it, the loft had become a veritable icebox. Unfortunately I was up in that loft only too often in the course of the January and February. Three bursts we had in the 90 feet of lead piping which spread like an octopus across the joists, and ghastly were the effects upon our lovely new decorations. Of course there was partial compensation from the insurance company, but we decided we could never again face a winter with this outmoded lead piping. After all, did we not know that tens of thousands of feet of piping, made in ICI's unburstable polythene, had gone into the cold plumbing of countless homes all over the country? We decided to be up with the times and to follow suit. Strangely enough, it wasn't easy.

Your average plumber is a hardy, dyed-in-the-wool traditionalist. The first of these gentry to whom we confided our plan showed not a particle of enthusiasm for it, but undertook to discover whether the local water company would deign to permit polythene piping in a roof space. This took us aback. We had not realised that water companies wielded such extensive powers—extending even into the customer's own home. But we accepted his assurance that official permission was obligatory, and he agreed to convey the company's decision to us in due course.

The decision arrived by telephone one day while I was at work. It was terse and to the point: the water company, according to our plumber, refused to allow a cold-water installation in plastic plumbing. I must say I was a little suspicious at that moment, feeling that perhaps the plumber's palpable disrelish of, to him, possibly untried material might have influenced the character of his message. However, after yet another burst—the worst we had suffered—we felt we *must* achieve polythene piping at any price, and I myself telephoned the water company to hear at first hand precisely where we stood. Their technical man, to whom I spoke, led off by saying they were against the use of such piping if it ran underground in close proximity to gas services. When I pointed out that my desire was to use the piping not underground but in a roof space where no gas conduits existed, he withdrew his objection. There was then, he said, no reason at all why we should not go ahead with the installation as and when we wished.

The next step was to get in touch with a builder friend, whom we knew to be sympathetic to modern techniques, and to ask him to undertake the installation. He said he would first send his chief plumber to make an on-the-spot investigation of the work entailed. The result of this was not altogether encouraging. In a written report, received later, we were informed that a satisfactory job in the new material could not be guaranteed—in particular, doubts were expressed as to the

ability of the several joints that would have to be made along the polythene lines to withstand an internal water pressure of possibly 60 lb. per square inch. This was a point, and we had to look into it, though neither my wife nor I could credit that ICI, who had been associated with polythene, not only as its inventors but as its developers for all sorts of practical purposes, could possibly have put their name and reputation behind something that did not work. Before replying to the builder, therefore, we made enquiries and found that the joint developed for use with polythene plumbing would comfortably contain a pressure of 60 lb. per square inch—in fact, that it would withstand 200 p.s.i. Having assured ourselves on this point, we told the builder that we were not under any circumstances going to be dissuaded from having polythene plumbing for our cold water, and asked him to begin the installation forthwith.

That, however, was not the end of it—oh dear, no! A day or two later, at about the time we had expected his plumbers to arrive, the builder himself telephoned to say that he too had been in touch with the water company.

"What for, for goodness sake?"

"To ask them what calibre of piping they would require us to use."

"And did you get a satisfactory answer?"

"Yes, but they went on to say that they forbade the use of polythene piping."

I could hardly believe my ears.

"But," I said, "I established long ago that they *approve* of the installation I want."

"Well," said the builder, "all I can say is that their Mr. B— was quite categorical. He said they will not have it."

"Give me his number," I said, and got him on the phone.

"What's this I hear?" I said. "You've told my builder you forbid the use of polythene piping in my loft?"

"That's true," said the technical man. "It's still experimental, you know. *Very* experimental. And we don't approve it."



"This is nonsense," I replied with some heat. "Millions of feet have been used—and most satisfactorily—all over the world. I want a cold-water installation that won't burst, come the next big freeze-up. And you are actually telling me I can't have it?"

"That's so," he said. "I've told you, we don't permit it."

"Would you," I said, rather icily, "put this in writing?"

There was a silence at the other end, and then the voice said: "I have told you, we could never recommend it."

"Just a minute," I said, "I am asking you not whether you are recommending it, but whether you forbid it."

"We would not," said the voice, somewhat doggedly, "recommend it."

"Right," I said. "What you're saying is simply that it's on my own head, isn't it?" So we went ahead.

The veteran plumber who eventually arrived from the builders obviously faced his task with misgivings. He explained lengthily to my wife, with many gesticulations, what a wonderful material lead was—amenable, tractable, a good and loyal servant of the craftsman. My wife assured him, however, that for better or for worse we were committed to the new twentieth-century plumbing and would not be diverted from it.

A couple of days later, with the new installation completely laid, the moment of truth was reached. The old plumber up in the loft called to my wife downstairs in the kitchen to turn on the pressure, and then stood back from his handiwork, quite clearly expecting a thousand fountains to start playing twixt the joists and the rafters above him.

To his obvious amazement, nothing happened. He went round diligently

He explained lengthily to my wife . . .

examining the joints one by one—not a drop from any of them, not even the tiniest smear of moisture on his fingers. He came down the ladder from the loft, and stood there chuckling with obvious surprise and deep gratification that he had brought it off.

"They're all holding, ma'am! All the joints are holding!"

"I am very pleased," said my wife. "Of course, we—that is to say, my husband and I—always knew they would."

"And you know, ma'am," he went on, "it's quite amazing, because it's really just glorified garden hose!"

Our polythene plumbing has not been easily acquired, but I am grateful to be able to say that it has given no trouble whatsoever—even in the hardest days of this winter.

As one who had to report cricket throughout the past season, I need no reminding that for sheer uncongeniality it was unsurpassed. It produced one of the worst set of conditions in which the game can be played or watched with enjoyment. Yet paradoxically 1963 was one of the most promising summers in the recent history of cricket. It should have provided us with the answer to the question "What is wrong with cricket?", which has been posed by publicists, propagandists and sports columnists for as long as I can remember.

As my cricket reportage was concerned with what are known as the "vagrant" or wandering clubs, the question did not affect me. Below the first-class or county level, cricket is flourishing as never before since the mid-nineteenth century. There are more people playing cricket than there have ever been, there is a healthy influx of keen young players, and since the cost factor enters but little into this strictly amateur province, the economic problem does not arise.

For let us be clear, all that the pundits mean by their complaints is that the first-class game is unable to pay its way in these days of vastly increased expenses. How, therefore, is cricket to be made sufficiently interesting and attractive to ensure the attendance of the public on whom it depends for its continued existence? Until last summer those responsible for cricket had tried every imaginable means to ensure "attractive" cricket. They had tinkered with the rules, altered the size of the ball and the wickets, and continually revised the regulations gov-



Dr. W. G. Grace

Whither cricket?

by Sidney Rogerson

erning the county championship, but all to no useful purpose.

And so to last summer. First we had the West Indian invasion, and although they did not always score rapidly enough to justify their description as "calypso" cricketers, they were always a magnet to draw the crowds. They played to win as much as Yorkshire or the Australians do, but they demonstrated that it is not necessary to wear long faces in doing so. The West Indians' greatest achievement was to show us the spirit in which both to

play and to watch cricket. The promise of 1963 lay in another direction—the likelihood that what is wrong with cricket is that there is too much of it of too unattractive a character. Let us face the fact that the county championship around which our first-class programme is built year in year out, can be, and indeed is over its greater part, utterly flat and without a semblance of excitement. It is rare that it is won by other than one of the three or four predictable counties. All the others plod through the season playing

day after day, six days a week, against other no doubt worthy but uninteresting sides before a scattering of spectators so sparse that they only serve to emphasise the emptiness of the grounds. Occasionally a player registers a remarkable performance, a very fast century perhaps or an unusual piece of bowling, but these are rather matters for the record books than torches to set light to the competition. The experience of 1963 seems to indicate that the future health of the first-class game lies in cutting down the amount of

cricket played, devising some fresh form of competition which would eliminate some of the tedium of the season-long county championship. The great success of the one-day knock-out competition was a sign-post which must not be ignored. I had for long imagined that the one-day match would bring cricket down to the level of a game of rounders, but on the contrary, the one-day fixture was seen to pose its own problems of captaincy and tactics as well as catch the imagination of the public. How far the knock-out competition can be extended is not clear but I would affirm that the number of days of what can only be described as routine cricket should be drastically cut down and the interests of spectators catered for by giving them fewer fixtures of shorter duration and of a more dramatic character. The factor of personality should be far more taken into account. It was no idle coincidence that the single-wicket match between two popular players was resurrected after a disappearance of close on a century.

Shortly after the first war I wrote an article for the *Daily Mail* in which I lamented the decline of personality in county cricket. Before 1914 the public could recognise its cricket heroes by their appearance alone. I illustrated this by sketches of "the Doctor" with his massive frame and long black beard, the Hon. F. S. Jackson with his well-trimmed moustache and the handkerchief knotted round his neck, Gilbert Jessop with his faded Cambridge "blue" or Crusader cap and Lord Harris with his imperial and bow tie. In place of these, the post-war County XIs were all uniformly clean-shaven under a blue or chocolate or green county cap. Whatever "personality" they were able to register by their play or behaviour was checked by their standardised appearance. Since those days I can only remember Douglas Jardine with his Oxford "Harlequin" cap to break the uniform pattern, until the one and only Freddie Trueman by the sheer gusto of his behaviour added to the unmistakable shagginess of his appearance placed him in the gallery of personalities by appearance as well as performance.

In these breathless days the public are just not willing or able to patronise cricket all week and every week. For years opinions have been voiced that our top-class players are expected to play too much. Now it is revealed that the public



Freddie Trueman

have been expected to watch too much and for too long. Let the cricket legislators at Lords carry on with the start they made so belatedly last summer. Let them prune the fixture list but invest such matches as remain with a sense of occasion. I recognise that there are economic imponderables and that the fewer fixtures should draw more spectators, and thus more revenue at less cost. Let us reflect that cricket began as a betting transaction on recognisable personalities, and I believe that somehow or other we should endeavour to make some return to the origins.

The problem of seeking a return in this manner may well be temporarily incompatible with the increased revenues that must be earned. There may well need to be a transitional stage. But it should not be insoluble in the long run. It is better to try in this direction and abandon all the futile attempts to "brighten" cricket. It is as profitless to expect to decree a standard degree of "brightness"—whatever the

word may mean—in cricket as to decree a standard fine day.

Above all let us see an end of the absurd and meaningless gestures to egalitarianism which is so foreign to our national character. For to what other motive are we to ascribe the decree of the M.C.C. abolishing the ancient categories of Players and Gentlemen? If Lords imagined this was a concession to the democratic spirit how wrong they were! I can imagine some amateurs found the label "Gentlemen" difficult to sustain but I have never known a Player who was ashamed of being known as a "pro" or professional, which is what he is. This decree seems to me to illustrate the ivory tower atmosphere which seems to permeate the Pavilion at Lords. Let us hope that the addition of Sir Leonard Hutton, Alec Bedser and Leslie Ames, announced last autumn, will let a little of the air of realism into those exclusive committee rooms.

The English Sewing Cotton Company Limited

ICI has entered latterly into association with a number of firms for the better development of mutual interests. One of these is the English Sewing Cotton Company, of whose history and activities the following outline will be of interest to ICI readers.



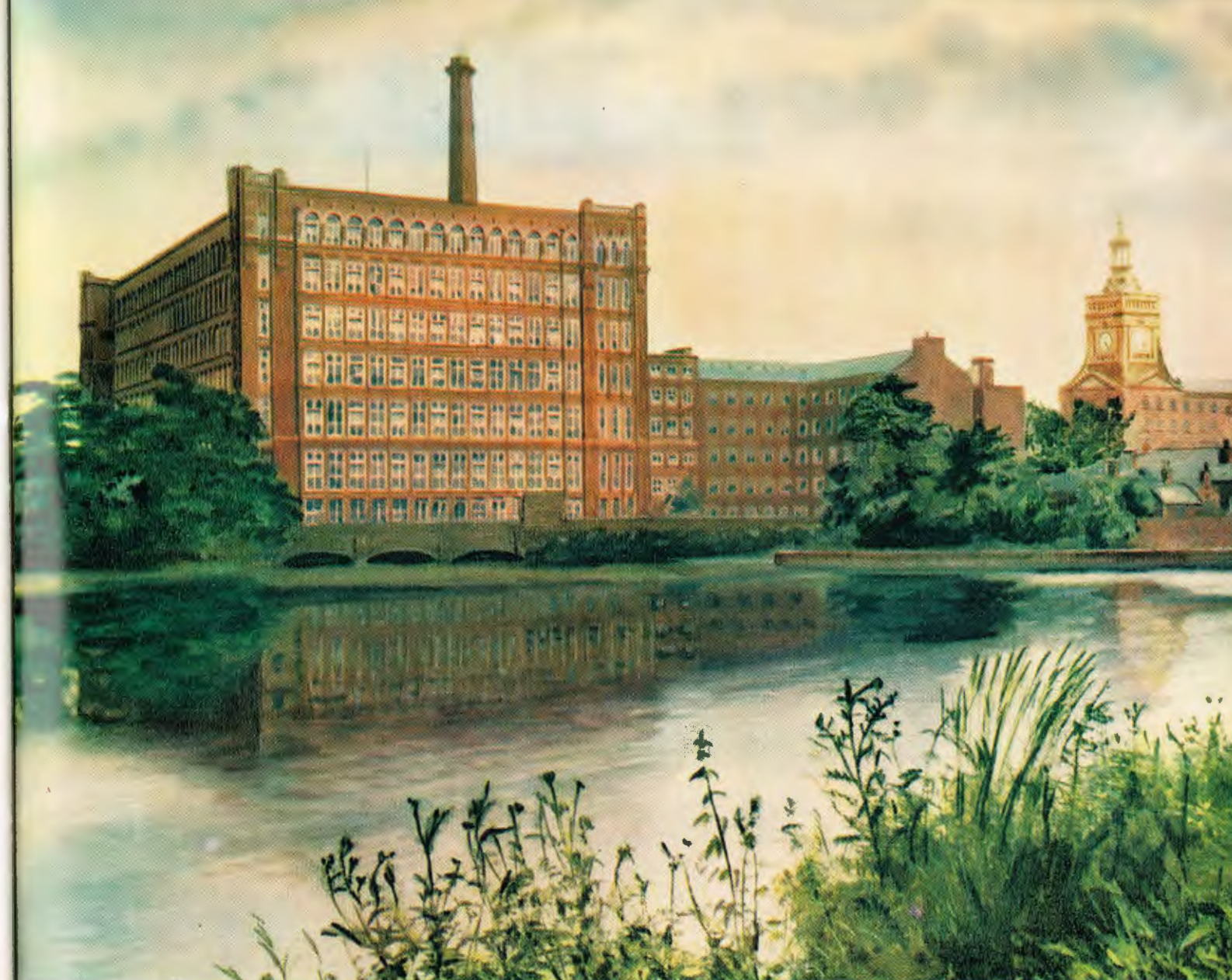
62 Sewing and handcraft threads for domestic use

The English Sewing Cotton Company, which today is one of the biggest names in British textiles, was founded 67 years ago. This makes it a comparatively new concern in an area which saw the beginnings of the Industrial Revolution and where some firms have been run by the same families through six or seven generations—but its origins go back to much earlier than 1897, and its history is closely linked to the whole history of machine-made textiles in Britain.

The Company was formed by the grouping within a single organisation of some of the best-known firms in the thread-making and related branches of the industry. They included two which had been formed more than 100 years earlier by two of cotton's greatest pioneers, Richard Arkwright, inventor of the water-powered "jenny" which revolutionised spinning, and Jedediah Strutt, a farmer turned inventor and businessman, who were partners from 1771 to 1780 and then operated separate firms which later came together again as part of English Sewing Cotton.

Today the names of both pioneers live on, for candlewick and other threads sold under the 'Strutt's' brand names are among English Sewing Cotton's best-known products and all of the group's yarn sales are handled by its Sir Richard Arkwright & Co. subsidiary. Another link is that many of the head office departments in Manchester are still housed in Arkwright House, only a few yards from Deansgate, although it is no longer the Company headquarters.

An equally famous firm which took part in the 1897 merger and whose name is still internationally recognised was John Dewhurst & Sons Ltd., of Skipton and Airton, in Yorkshire. Founded by



A reproduction from an old hand-coloured photograph of the English Sewing Cotton Company's mill at Belper, Derbyshire

Thomas Dewhurst, a farmer who had already ventured in a small way into the wool and cotton trades before he set up a water-powered mill at Skipton in 1798, the company grew steadily throughout the early 1800s. Before 1869 they concentrated on producing good-quality spinning cotton yarns and on making cotton and mixed goods. Then the decision was taken to add sewing cotton to the range, and it proved to be one of the most important steps in the company's history. They quickly built up a reputation for their sewing cottons, and for well over 70 years 'Sylko' and other machine threads from Skipton have been bought by housewives and more professional users in most parts of the world.

Other well-known firms which joined in the merger were Ermen and Roby Ltd., a Lancashire concern established in 1837

by a Dutchman named Peter Ermen, who had come from Holland only twelve years earlier to learn something about British trading methods, S. Manlove & Sons, of Chesterfield and Belper, who were the first to market 1000-yard reels of sewing cotton in the early days of sewing machines, and Crawford Brothers, of Beith, in Scotland, founded in 1775 and specialists in high-quality linen threads.

These were typical of the firms which came together in 1897 as a defensive measure at a time when fierce competition within the industry had led to severe price cutting and serious financial troubles for many. All fourteen companies shared certain characteristics—but they were sufficiently different in other ways to make the title of the new organisation something of a misnomer. They were not all English, they were not all concerned

solely with sewing threads, and some of them had nothing to do with cotton.

Within a year of the merger the title was made still less accurate by the formation in the US of the American Thread Company Incorporated, a wholly owned subsidiary of English Sewing Cotton which was later to become even larger than its parent. In 1964 the name is even more misleading.

Today the Company operates in many parts of the world—excluding the US, it has mills in seven overseas countries, as well as many other offshoots. It produces yarns from wool and man-made fibres as well as from cotton, and it spins, dyes, bleaches, mercerises and twists these, among other processes. In addition to still extensive thread-making, the Company and its subsidiaries also knit, weave and bond fibres and yarns into fabrics and



A selection of industrial threads

then make many of these fabrics into finished goods and garments ranging from women's underwear to men's shirts and children's summer dresses.

The Company is one of the biggest cloth weaving concerns in Britain, with mills which produce cambrics, poplins, winceyettes, Bedford cords, typewriter-ribbon cloths, book cloths and 'Terylene' sailcloths, among many others from a seemingly endless list. "Merchanting" subsidiaries take "grey" cloths from the mills and convert them into shirtings, furnishing fabrics, towels, bed linen and other goods, and at Congleton and Macclesfield knitwear factories produce underwear and outerwear for women and children.

The Company's thirty UK mills and factories are scattered over half a dozen English counties, as well as Scotland and Northern Ireland. Altogether it has 12,000 employees in the United Kingdom.

The expansion of its interests began in the 1930s, when knitting and garment making were added to the original activities, but it was after the second world war that diversification and development really began. In 1946 overseas markets

had been lost, buildings, plant and production methods were in many instances outdated, and there was too great a dependence on the American subsidiary.

Before 1939 about two-thirds of all English Sewing Cotton's UK production went overseas, particularly to the Far East. There had been valuable markets in India, Pakistan, Burma, Malaya, Indonesia and the Philippines, but now, with the growth of economic nationalism, the Company had to choose all too often between setting up plants in these and similar markets or losing the business for ever. The decision varied from country to country, depending on political considerations, trading prospects and other factors, but over the years mills and factories have been built in India, the Philippines, Australia and Nigeria. Another was built in Eire and an existing business was bought in Canada.

The loss of exports so affected the Company's British mills that new directions for expansion had to be found, preferably in ways which would extend the existing product range, which was too limited. It was decided to expand in garment making and in knitting, where the

Company already had some experience and where prospects appeared good, and to enter into the traditional weaving and merchanting of "Lancashire" textiles.

The Company has also had to take into account the vastly changed trading patterns which have developed in recent years, and in addition to making its plants more competitive and increasing its production it has concentrated on strengthening its marketing and sales, particularly where the use of brand names and similar measures could build up a relationship with the final customer in the shops. As a result, English Sewing Cotton today makes many branded garments and fabrics.

The recent acquisition of Tootal's was another step in this process for, in addition to a famous name, a large research organisation and fine manufacturing facilities, it brought to the group much valuable marketing experience.

The English Sewing Cotton Company today is much different from what it was ten or even five years ago and, such are the changes taking place in the textile industry, it will look even more different five years from now.

A numismatist in praise of numismatics

by Frank Ballin

It is, I often feel, quite an instructive exercise as we get on in years to try to discover how we or our friends first came to acquire a taste for something which has become a deep and lifelong interest. At the time that I was quite a small boy at school in Hampstead my mother often visited the Caledonian Market at Islington, which I believe is now no more, in a typically feminine search for bargains. She usually brought me home a toy of some description, and one day, when I suppose she could not find anything she thought I might fancy, to my great delight presented me with a Charles I shilling. It is a well-worn piece and by no means a rare variety, but it will always have a special place in my collection. From my earliest childhood history always fascinated me, and the portrait of King Charles, with his lace ruff, on this old shilling appealed to my love of bygone days. My appetite was whetted still further when an "honorary aunt," whom I was usually taken to visit during my school holidays, presented me occasionally with various old German thalers. She also gave me a silver 5-franc piece of Napoleon I, bearing that monarch's effigy, which intrigued me very much, as its obverse legend reads NAPOLEON EMPEREUR, while on the reverse is inscribed RÉPUBLIQUE FRANÇAISE. I asked myself the reason for this seeming contradiction in terms, and have never yet discovered one. Curiously enough, not very long ago I read a letter in a daily paper also seeking the reason for this anomaly, but unfortunately I have not seen any reply.

Most people have probably at various times had the urge to collect something, and whether this interest is lasting or ephemeral must depend on the individual's own character. If he can light on a subject on which he can concentrate for a lifetime, he will find it richly rewarding and, I think, youth-preserving into the bargain. Should he, on the other hand, if the shade of Mr. Dryden will forgive me, be "In the course of one revolving moon Philatelist, numismatist, philumenist and tycoon" he will not, I am sure, experience any of the deeper satisfactions which a serious collection, no matter what it be of, can afford.

Unless he happens to dispose of unlimited means and leisure, it is as essential for the numismatist as for the philatelist to decide at the outset in which country or period he intends to specialize. In my own case I have always confined myself to English coins and have tried to get specimens of as many different reigns as possible, with an emphasis on shillings and Maundy money. Someone else might centre their interest on crown pieces or on gold coins generally. (The acquisition of a representative collection of the latter would, I need hardly add, be relatively costly!)

For those with an inclination towards the subject but without much knowledge and who may wonder how they can acquire more, let me say that there is a fairly extensive literature of numismatic reference, of which one of the earliest works is Edward Hawkins' *Silver Coins of England*, published in 1841. This is a

comparatively rare volume and includes detailed descriptions of most of the silver coins current in England since the time of the Roman occupation and in addition is embellished with a beautiful series of plates. Henfrey's *English Coins* followed in 1870, but does not list the variations in such great detail. Among later works the student will find Sir Charles Oman's *Coinage of England*, issued in 1931, well worth reading. Sir Charles was at one time MP for York, and it was largely through his efforts that the crown piece was revived in 1928, albeit it has never again come into extensive circulation. During recent years an eminent firm of numismatists, B. A. Seaby Ltd., have published an extensive series of works on Greek and Roman as well as English coins. They also issue a priced catalogue every year and a monthly bulletin of their stock on offer at the moment.

When it comes to the actual acquisition of a collection, the choice is as open as the sky. I have already described how I came to make my own first steps in this direction. For those who may wish, as it were, to dive in at the deep end it is perfectly possible from time to time, particularly at the larger London auction rooms (the details of whose sales are advertised in the national press), to acquire an entire collection or at least so substantial a nucleus for one that its completion is really a matter of specialisation. For those who may want merely to lay the foundations for an edifice to be built at leisure, and by their own hands, there are some four or five numismatical firms in London who have

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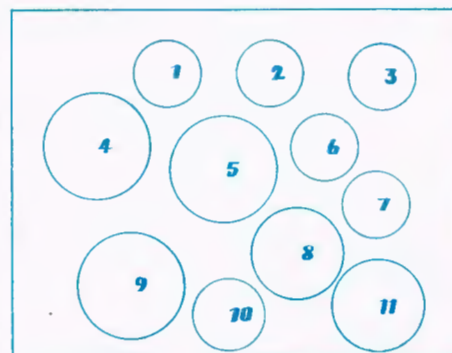
a constant turnover in stock and who will always advise clients when they have the desired specimens to offer.

From such as these, as I suggest, a ground plan for the type of collection one has in view can be acquired—in other words the key coins of the various sections and sub-sections of which the complete collection will consist. And then the chase is on, and all the fun, the stimulation and the knowledge which will come with it as one strives to fill the gaps and acquire those necessary rarities which will be eventually the crowning glories of one's collection.

The joy of coin collecting, as I have tried to show, is the element of luck and chance in the game. The least likely antique dealer, the shabbiest of old curiosity shops, the very junk stall at a bazaar may—who knows?—reveal the thing for which one has tried and tried again in vain. Interest is everywhere, excitement round every corner, nor need either ever be exhausted, for beyond each peak that one can scale rears another, inevitably, awaiting conquest.

And here I am, now entering upon retirement, as full of enthusiasm as I was upon that distant day when, aged sixteen, my father told me to call at his office in the City, to be taken for my annual visit to the optician, and while there to be summoned to his boss's private sanctum. My father's chief was a well-known City magnate and is, I believe, still alive and nearly ninety years old. While expressing the wish that I should have a successful autumn term he handed me a pound note, remarking that this would doubtless come in useful at the school tuckshop. I am afraid that I was not a normal schoolboy, because it wasn't the thought of an unlimited supply of "Turkish squares" (a speciality at the aforementioned tuckshop) that made my mouth water, but a George III half-sovereign in mint condition that I had seen that very morning in the window of a jeweller's shop near Hampstead Heath, the price whereof was 11s. 6d.

A year or two later, when I had just started my first job in the City, I bought a George III half-guinea, also in mint condition, for 12s. 6d. This is now catalogued at £5 10s. and is of particular interest, as it is almost the last type of half-guinea ever struck and is one of the earliest coins minted after we dropped the meaningless title of King of France from the royal style.



A selection of the author's coins, shown slightly enlarged:

1. Charles I. Gold crown. 1627. (reverse)
2. William and Mary. Maundy three-pence. 1689. (r)
3. William and Mary. Maundy half-groat. 1694. (obverse)
4. George III. Countermarked Spanish dollar. 1789. (r)
5. Charles II. Crown. 1679. (o)
6. George III. Half-sovereign. 1820. (o)
7. William and Mary. Maundy groat. 1689. (r)
8. Elizabeth I. Milled sixpence. 1562. (r)
9. William III. Crown. 1695. (r)
10. Victoria. Jubilee sovereign. 1887. (r)
11. George III. Spade guinea. 1787. (r)

Let no one infer that I am a wealthy type, because to this day I have never succeeded in amassing more than ten gold coins of various sorts. All the same, I should be very happy if some of my very small ventures in the stock market had ever shown such a good capital appreciation.

But what appeals so greatly to me in this hobby is not really so much the end in itself, but all the gay, improbable and frequently half-ridiculous means which have brought me to that end. To give one last example (a distinctly frivolous one, for which I will beg in advance for forgiveness of my readers): some years ago, on arriving for one of our numerous visits to the charming Norfolk village of Mundesley, I discovered that my wife had reorganised my suitcase and in so doing had omitted my pyjamas! Having borrowed a pair from the landlord for the weekend, we set off on the following Monday afternoon for Cromer to repair this serious omission, and on alighting from the bus the first shop I saw was a jeweller's with a tray of coins in his window. This was the very shop, now kept by the son of the previous owner, where my father had bought me an assortment of coins almost forty years previously, but when I mentioned this circumstance in the course of my purchases he did not allow me a discount as



Brian Price-Thomas

an old customer! You will gather from this that I deferred the purchase of pyjamas (rather to my family's annoyance) until I had examined his stock, and, in addition to an early Victorian Gothic crown struck in 1847, which I consider the most beautiful English coin ever minted, purchased a 3s. bank token dated 1811. Before the perfection of modern mass production technique, no two dies

were exactly similar, and this circumstance often accounts for the degree of rarity of different varieties of the same issue. The peculiarity of the 3s. bank token is that the number of very small acorns in the design on the reverse varies from 24 to 27, and the smaller the number of acorns the rarer the coin and consequently the greater the value. For the rest of that holiday I gave myself eyestrain

trying to prove that the thing had only 24 or 25 of these confounded acorns, but reluctantly had to admit that it possessed the largest possible number and therefore only ranked as a common specimen.

And there, perforce, I must leave the subject, which has brought me well-nigh lifelong enjoyment, interest, and not a little historical appreciation as well. Some time, somewhere, in the nature of things,

the coins which I have gathered together for myself will be once more for disposal and perhaps dispersal. Good luck to whoever obtains them, for like Tennyson's brook, men may come and men may go, but they go on for ever. I can only hope that to whomever they may pass they will bring the same amount of instruction, pleasure and amusement as they have brought to me.

Some wild flowers of Britain by David Paton

Sedum acre—**Biting Stonecrop.**
Relatively common in stony places or
walls throughout Britain

Bottom: *Gentiana verna*—**Spring
Gentian.** In England very rare—only in
Upper Teesdale

Throughout nature we see how life responds to changes in environment, and this is particularly true in the case of wild flowers. It is easy to think of some of the causes: built-up areas are continually increasing, land is more intensively cultivated, chemicals are being used to control pests. Consequently there are plants whose numbers are diminishing to the point of extinction, while others are finding fresh ground to colonise.

It is this perpetual state of change which, I think, makes wild flowers so fascinating. Luckily it is not necessary to be a botanist to appreciate them, though to identify some and know a bit about their habits adds enormously to the enjoyment.

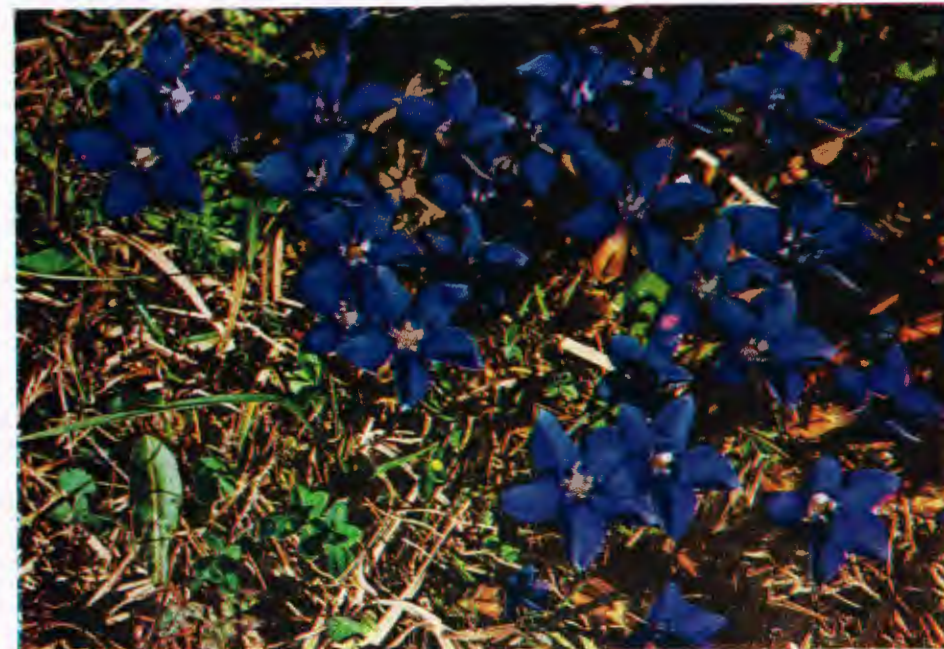
In Britain at present there are roughly two thousand species. This is large by European standards, though France is exceptional with about twice as many.

This number provides ample opportunity for collecting species, and in every locality—however unpromising it may appear—there will almost certainly be something fresh to see. Rare species form an obvious attraction. Many of them were formerly common, but have since been subjected to excessive persecution or loss of habitat and so been unable to survive. Others are rare simply because they cannot exist except in specialised locali-

ties, as with some of the mountain plants.

Everyone would like to discover a flower that has never been found before. In Britain this is unlikely—though not impossible. For example, a new flower to Britain, *Diapensia lapponica*, was recently

Ranunculus aquatilis—**Water crowfoot.**
**Very common, but not usually as thick
as across this stretch of the River Wey
at Tilford**





Top: *Primula farinosa*—Bird's Eye Primrose. Relatively common in limestone mountain pastures of the north of England. Can easily be grown in a bog garden. Only about 3 in. tall
***Ruscus aculeatus*—Butcher's Broom.** Frequently found in the south of England. Flowers small dirty white. More often than not the berries do not form. Flowers and fruit apparently grow from the centre of the leaves. Member of the lily family

found in a wild mountainous part of Scotland. But a rare flower is often extremely dull, and likely to pass unnoticed at first sight.

The misty blue shimmer and sweet fragrance of a bluebell wood is something typically British. The flowers are adapted to our moist conditions and comparatively mild winters, and so are quite rare on the Continent. From my own experience

with the front flower-bed they spread rapidly. When established, they grow in such profusion that indiscriminate picking has little effect, and it seems that they are likely to flourish in the future as long as open woodland space remains.

With wild daffodils, *Narcissus pseudo-narcissus*, the case is different. It is thrilling to see them flowering, though there are few places left in Britain where this can be done. The group illustrated was photographed in the Lake District in April. Their stems are about six inches high; they should not be confused with the daffodils which grow "wild" in our parklands, and which are considerably larger. In spite of several attempts I have been unable to get the wild species to flower satisfactorily at home. Unlike the bluebells, they are far more frequent in the mountain pastures of Europe.

Mention of mountain pastures immediately reminds me of the Spring Gentian, *Gentiana verna*. The dazzling azure blue of the flowers is an unforgettable sight. I always wonder how many gardeners have tried to capture this treasure and have met with disappointment. If it flowers at all, it never seems to have the same brilliance as in the wild. Its distribution is interesting. It is very common in the Alps, while with increasing northerly latitude the height at which it is found decreases. At places in the west of Ireland it flowers at the edge of the sea. It is always difficult to grow in cultivation: among other things it requires a moist, alkaline soil and plenty of sunshine. It is exceptionally rare in Britain, and as far as I know grows only in the lonely regions of Upper Teesdale. There it seems likely to flower in isolated splendour for a long time to come. But why only there seems most mysterious.

Being born and bred in Yorkshire, I love the great wild stretches of open moorland. In this region a small lake called Semer Water lies in a hollow, and around the edges there are several uncommon flowers. One is the Globe Flower. It is related to the buttercups, and has a pale yellow globular flower on a stem about two feet high. Nearby there are plants of the Common Butterwort and the Bird's Eye Primrose, *Primula farinosa*. The latter is a small graceful plant, only a few inches high, which is found in wet mountainous places having sufficiently alkaline soil. The flower stems are covered with a mealy powder, and this



***Orchis ericetorum* (elodes)—Heath Spotted Orchid.** Widespread in distribution, and found on heaths with acid soil
Right: *Narcissus pseudo-narcissus*—Daffodil. Photographed in April in the Lake District. When truly wild is not common, chiefly confined to mountainous pastures. Is often found in fields as a garden escape. Such plants are usually much taller than the wild specimens

accounts for the Latin name. Though widely distributed over the mountain ranges of Europe, Asia and some Arctic regions, it is unfamiliar to most people. It can easily be grown by removing whole a portion of the wet ground together with some growing plants, and putting it all in a container which has previously been drilled to provide drainage holes. If the container is sunk in the garden it will not be noticed. The soil should be kept soggy at all times. Like *Gentiana verna*, the plants seem to lose their character when cultivated; they become straggly and less attractively coloured.

Although these two plants are northerners, I should like to emphasise again that every area has its own special interests. Coming south to Surrey, there



are places where bushes of the Butcher's Broom, *Ruscus aculeatus*, are frequent. These are about two feet high, and you are usually first aware of them because of the prickles. The flowers are hardly noticeable. The interesting thing is that they appear to grow from the centre of the leaves. But these small, hard, green, pointed structures are not leaves at all but swollen stems, called cladodes. Later the fruit develops into a rich-red berry, still attached to the centre of the apparent leaves. The bushes are mostly unisexual, and since the fruit does not always develop the berries are somewhat infrequent.

Orchids provide a fascinating study of their own. Most are lovers of chalk soil, but some just the reverse. One of the latter is the Heath Spotted Orchid, *Orchis ericetorum*. It is often found on heaths throughout Britain. Now orchid seeds are almost microscopic in size, and it may be a matter of several years before the plants are ready to flower. How they exist at all during this period is fully explained in Summerhayes' book *Wild Orchids of Britain*. But one of the results is that the appearance of orchids is spasmodic and uncertain. One year there

were hundreds of plants of *Orchis ericetorum* on Thursley Common. The following year, in the same place, I could not find a single one. This capricious behaviour seems to be part of their charm.

Everyone will remember the Water Crowfoot, *Ranunculus aquatilis*, if only dimly from kindergarten days. It flowers throughout the year in wet places, and seems to depend for its charm on sheer weight of numbers. I have seldom seen it make a better display than one year when it was nearly covering the River Wey at Tilford.

Another familiar little plant grows on walls and rocks all over the country. It is the yellow-flowered Biting Stonecrop, *Sedum acre*. Biting refers to the taste of the leaves if chewed. The way it is able to live in such dry situations is clearly by storing moisture in its succulent leaves.

These then are a few of our native flowers, some very familiar and some perhaps less so. But each has an especial charm, which I hope the photographs will convey. There are many small and inexpensive books which will help with identification, and I know of no other pursuit which will give real and lasting pleasure so rapidly.

KOROLEVU, FIJI *by Miss E. Barron (Plastics Division)*

